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ABSTRACT

This document contains a literature review conducted as part of a study to develop criteria to measure the extent of implementation and the effectiveness of demonstration projects in vocational education. The literature review serves two purposes: it establishes the state of the art in measuring the effectiveness of educational innovations and it identifies project characteristics related to success. These subject categories are considered: project characteristics, dissemination strategies, dissemination measures, outcome measures, continuation, and adoption. A summary of factors related to program success follows. The results are discussed under the following headings: general literature, project characteristics, dissemination strategies, factors related to continuation, and factors related to adoption/adaption. A summary is also provided. A matrix showing the materials abstracted by subject category is presented along with a bibliographic listing of materials. Abstracts of the literature comprise over four-fifths of the report. In addition to bibliographic information (author, title, source, date of publication), a summary of content is provided. (YLB)

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LITERATURE REVIEW FOR DEVELOPMENT OF CRITERIA TO MEASURE THE IMPACT OF VOCATIONAL EDUCATION DEMONSTRATION PROJECTS

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February 12, 1979

The work reported herein was performed pursuant to a contract with the United States Department of Health, Education, and Welfare, Office of Education. The statements, findings, conclusions, recommendations, and other data in this report are solely those of the Contractor and do not necessarily reflect the views of the Office of Education.

TABLE OF CONTENTS

I.	INTRODUCTION	i
II.	STATE OF THE ART IN MEASURING PROGRAM EFFECTIVENESS	ii
III.	FACTORS RELATED TO PROGRAM SUCCESS	ix
IV.	SUMMARY	xxii
V.	LITERATURE REVIEW SUBJECT MATRIX	xxiv
VI.	BIBLIOGRAPHY	xxviii
VII.	ABSTRACTS	

I. INTRODUCTION

This document contains a literature review conducted as part of a study for the U.S. Office of Education to develop criteria to measure the extent of implementation and the effectiveness of demonstration projects in vocational education. The literature review was designed to serve two purposes: (1) to establish the state of the art in measuring the effectiveness of educational innovations; and (2) to identify project characteristics which are related to success. The product of this activity provides the basis for accomplishing the main tasks of the study, such as the specification of acceptable evidence of project impact and the preparation of a monograph for improving and measuring impact.

Since the literature review was designed for a specific purpose, an information classification system was established early in the review process so that the abstractors could conduct a content analysis of the documents as they were being reviewed, thus providing an ongoing inventory of the subject matter. Only the material directly relevant to this project was abstracted and this was done in considerable detail if it appeared appropriate. The subject categories of the classification system that were chosen as most relevant to the needs of the study are: General, Project Characteristics, Dissemination Strategies, Dissemination Measures, Outcome Measures, Continuation, and Adoption. The General category contains mostly theoretical literature. Project Characteristics and Dissemination Strategies are considered process variables which are ultimately related to project success. The categories Outcome Criteria, Dissemination Measures, Continuation, and Adoption are perceived as sources of impact criteria.

In this document, the State of the Art in Measuring Program Effectiveness is addressed first, followed by a summary of Factors Related to Program Success, and a Summary section. Then a matrix showing the materials abstracted by subject category is presented along with a bibliographic listing of materials. Finally, the abstracted literature is presented.

II. STATE OF THE ART IN MEASURING PROGRAM EFFECTIVENESS

The major concern in assessing the state of the art was to focus on criteria for measuring the effectiveness of educational innovations. More specifically, this means documenting criteria which have been used for: (1) measuring what have been considered successfully-implemented and documented demonstration projects, and (2) measuring the impact and spread of educational innovations. Criteria for measuring what have been considered successfully-implemented and documented demonstration projects refer to those criteria which provide evidence of success in the project's final demonstration phase. These criteria are covered comparatively extensively in the literature. By contrast, criteria for measuring the impact and spread of educational innovations have received less attention. These criteria address the extent to which educational innovations have had effects beyond the demonstration phase and beyond the demonstration site. The categories from the literature review that address these issues are Outcome Measures, Dissemination Measures, Continuation, and Adoption.

A. Outcome Measures

Outcome measures are the most prevalent criteria used for assessing the success of educational innovations. Outcomes concern direct measures of change on the target population or systems that the innovative program is designed to improve. These vary considerably across projects because of the variation in stated purpose among innovative programs. Outcome criteria include measures of change in students, teachers, school personnel (other than teachers), the school system, and the community-at-large.

Outcomes are primarily used as measures of success at the host site of the innovative project. A survey of the literature indicates that measuring outcomes from adopting sites to assess the effectiveness of the innovation is not a widespread practice. Such measures may be termed second generation outcomes because their purpose is to assess the success of the spread of an innovation by measuring the program outcomes at adopting sites.

Although the literature includes some discussion of the need for followup measures, in reality, little has been done in this area. These measures include various types of comparative longitudinal and time series approaches, among other things, the focus being on long term effects of the project on the target population or system. Of those followup measures discussed in the literature, the most commonly used one is based on the number of students who found jobs as a result of participating in a program. However, the National Academy of Sciences report (1976) considers initial employment as an

inadequate measure of program success. Additional followup measures suggested by the NAS report and by other literature are student opinions of the program, job satisfaction, upward mobility, earnings, employer satisfaction, and extent to which skills learned in the program are being utilized. These measures are not often used because of the expense involved in tracking program participants over time as well as the need for tracking a comparison group to ensure the validity of the findings.

The Joint Dissemination Review Panel also evaluates programs for distribution by the National Diffusion Network on program outcome criteria. Their selections are based primarily on statistically significant student gains which are specifically attributable to the program and program feasibility for the "typical school." Programs having purposes other than cognitive achievement are judged on different criteria but the same logic is applied (Far West Laboratory report, 1978).

Outcome measures that appear in the literature are discussed below.

- Student Outcomes. All of the documents listed under "Outcome Measures" in the literature review subject matrix address student outcomes in some form or another. The criteria cover a range of project-specific student knowledge, skills, or attitudes and a variety of instruments are used to measure these outcomes. Some are standardized measures while others are not.

  In addition to student knowledge/skills/attitudes which are project-specific, other student outcome criteria mentioned in the literature are: (1) the number of students who found jobs as a result of participating in the project (Jacobson and Scheufler, 1978); (2) job satisfaction; (3) continuation of education; (4) job mobility and wages; and (5) the intent to which the project meets needs of various clientele groups (National University Extension Association, 1978).

  Rivlin (1971), Tallmadge (1977), and others emphasize the importance of demonstrating that change has occurred, that the change is significant, and that it is attributable to the project. Reliability and validity, the use of comparison data, and pretest/posttest strategies are also emphasized.

- Teacher Outcomes. Another recurring outcome criterion is a significant change in teacher behavior and attitudes specific to project objectives (Abramson, 1978; Gross, et al., 1971; MacDonald, 1973; Packard and Jovich, 1978; Post, 1978; Rand, 1974-1975; Rosen, et al., 1977; Tallmadge, 1977). Pre/post data were collected from teachers in the study reported by MacDonald (1973). In addition, the teachers kept semi-structured diaries.

- School Outcomes (other than teachers). Changes in staff behavior and attitudes was another outcome criterion mentioned. Excluding teachers, other staff members identified as necessary for implementing change include administrators and counselors (Rosen, et al., 1977). Post (1978) thinks that causing changes in administrative and faculty attitudes throughout the school district is an important function of a demonstration project.

- Outcomes in School Systems. Goodlad (1975) states that evaluation of project impact at the classroom level is not enough. Changes in procedures and attitudes relevant to project objectives should be evident throughout the school organization in order for the project to continue. In most cases, the relevant organization will be the school district, but in other instances, it may be the state educational agency, or the department/school in a university (Gooler and Ely, 1972).

  In the final stages of the demonstration project, procedures and attitudes in the school system should reflect support for project continuance and obstacles to changes required by the project should have been considerably reduced or eliminated.

- Community Outcomes. Community outcomes include changes in the attitudes and behaviors of parents and potential employers. Often these two groups of people are included in project development (Rosen,et al., 1977). In the Weatherford,et al. (1978) study, a parent opinion survey was used to assess community opinions regarding the effectiveness of the program. The Shively and Davis (1978) study surveyed parents and employees for their attitudes towards the program.

- Cost Effectiveness. McKinney (1977) thinks that projects should be able to demonstrate cost effectiveness. However, Rivlin (1971) does not think this criterion can be feasibly considered when program effectiveness is not clear and needs to be evaluated. Harmes (1970) and Hopkins (1976) state that increased efficiency is an important criterion in the change process.

- Percentage of Objectives Achieved. Several studies used percentage of objectives achieved as an outcome criteria (Hamilton and Mitchell, 1978; Harmes, 1970; House, 1973; McKinney, 1977; New Educational Directions, Inc., 1977b; Rand, 1974-1975; Rivlin and Timpane, 1975; Tallmadge, 1977; Thomas, 1978; Villoni, 1978). The objectives should be specific, measurable (McKinney, 1977), and clear (Rivlin and Timpane, 1975). Furthermore, objectives should be aligned with the goals of the program (Harmes, 1970; Thomas, 1978). Evaluation of objectives should include fidelity and difficulty of implementation at the classroom level (Rand, 1974-1975). A shortcoming of this approach is that the stated project objectives may vary in their importance.

B. Dissemination Measures

Dissemination measures are sometimes used as additional indicators of project success and are often stated as program outcomes. However, they are treated separately in this document because of the variability in their use. Although dissemination measures are sometimes used as program outcomes, they are not measures of program effectiveness. Dissemination is a necessary but not sufficient condition for the spread and eventual adoption of an innovation at other than the demonstration site, but is not an end in itself.

Dissemination measures mentioned in the literature consist mostly of documenting the number and kinds of dissemination activities used. They are:

- Number of Organizations and Groups which Attended Presentations. Usually, lists were kept which included the date of presentation, the name of the project staff person presenting, and the name of the organization(s) or group(s) attending. (Carkhuff Associates, Inc., 1978; Jacobson and Scheufler, 1978; Post, 1978; Thomas, 1978).

- Number of Printed Materials that the Project Distributed. Descriptive literature of the project took many forms such as pamphlets, newsletters, brochures, and catalogues. The measure of dissemination usually consisted of a list with the names and addresses of persons who were sent printed material. Some projects kept separate counts of materials distributed by categories such as solicited/unsolicited, in-state/out-of-state, etc. (Carkhuff Associates, Inc., 1978; Cedar Associates, Inc., 1978; Post, 1978; Rand, 1974-1975; Thomas, 1978).

- Number of Visitors to Project. Records were kept of the number of visitors to the project by the organization/group the person represented or by type of visitor, such as parent, teacher, student, etc. (Cedar Associates, 1978; Jacobson and Scheufler, 1978; Thomas, 1978).

- Inclusion in ERIC. Inclusion in ERIC was mentioned most often as a dissemination strategy, but has also been used as a measure of dissemination (Cedar Associates, Inc., 1978).

- Number and Name of Task Forces in Which Project Staff Participated. Reporting on the number and names of task forces in which project staff participated was mentioned by Post (1978).

- Statewide Diffusion of State Adopted Curriculum. The fact that the state endorsed a program and that a project utilized statewide dissemination was mentioned by Schumacher (1972).

- Cost of Dissemination. Schumacher (1972) also mentioned cost as a factor. Cost affects the quality and extent of dissemination.

- Quality of Disseminated Materials and other Dissemination Strategies. Generally, measures of quality of disseminated materials and other dissemination strategies were not discussed. However, some authors mention criteria which may be applicable. Hopkins (1976) suggests a number of criteria for reviewing educational programs and products. Some of these are adoptability, intrinsic quality, desirability, effectiveness, and efficiency. The possibility of "spinoffs" are considered an important criteria for model programs/products.

C. Continuation Measures

Continuation refers to the institutionalization of project innovations in the host site. Relatively few measures of continuation appear in the literature and those that do are much less sophisticated than the outcome measures used. This is probably due to the difficulty of quantifying the degree of continuation since there is often considerable variation on how project-generated practices and materials are utilized once the demonstration phase has terminated and the program must rely on other funding sources.

The literature indicates that authors have different conceptions of continuation. Stufflebeam (1966), Welsh and Associates (1978), and Packard and Jovick (1978) view continuation as a measure of institutionalization. On the other hand, Packard and Jovick (1978) use continuation as a measure of success while Project Baseline (1970-1974) and Gustafson (1978) use it as an impact measure.

Development Associates, Inc., (1975b) asked school administrators what their plans were for continuing the project after federal funding had terminated. Project Baseline measured continuation in terms of whether state and local funding was ever given, was reduced, remained the same, or was increased following termination of federal funding. The section of the questionnaire used to measure continuation in the Hull and Bina (1977) study is given in the abstract.

D. Adoption/Adaption Measures

While continuation refers to the longevity of the innovative project in the host site, adoption/adaption concerns the spread of the innovation to other sites, either in part or in whole. Adoption/adaption is discussed somewhat more extensively in the literature than continuation, but some of the issues are similar.

Two of the major problems in measuring the extent of adoption/adaption are: (1) the cost and difficulty of identifying and collecting data from adopting sites, and (2) the difficulty in quantifying the extent to which practices and materials from the innovative project are being used in their original form.

If the innovative project keeps a list of potential adopting organizations, then these organizations could be contacted regarding possible adoption of project generated innovations. However, some innovative projects do not keep written records of potential adopters who request information, and many adopters are unknown to the host project because information about the innovation was obtained at a conference or through a disssemination network.

More often than not, products from innovative projects are adapted or partially adopted, rather than adopted in total in other sites. This makes it difficult to assess program effects in adopting/adapting sites as they relate to program effects obtained at the host site, or to compare program effects among adapting sites.

Adoption/adaption measures have been used in both formative and summative evaluations and have focused on federal/national schools and classrooms. In a general sense, adoption has been used as a quantitative measure of program success (e.g., number of adoptions/adaptions) while summative evaluations have focused on degree of implementation as associated with program processes (e.g., extent of installation and goal attainment).

The presence, degree, and policy endorsement of an adoption have generally been interpreted as impact criteria of an innovation, particularly of a demonstration program either at the state, local school district, or individual school (Jacobson, et al., 1978; Hull and Bina, 1977; National Academy of Sciences, 1976; Project Baseline, 1970-1974; Schumacher, 1972; Welsh and Associates, 1978). Measures of adoption/adaption as impact have focused on number and/or proportion of materials requested, used (in part or whole), or evaluated by potential adopters (Jacobson, et al., 1978; Hull and Bina, 1977; Project Baseline, 1970-1974; Schumacher, 1972; Welsh and Associates, 1978; Gustafson, 1978).

Adoption as project impact has generally been evaluated by personal interviews with a sample of administrators using rating scales. House (1974) suggests innovation adoption cannot really be measured unless one considers its " realization" through formative evaluations of the teachers and administrators who have adopted.

Stufflebeam (1966) presents certain criteria which can be used in summative evaluations of program adoption particularly at the local level. These include evaluation of: (1) quantity of training, continuity of personnel, and trained personnel's knowledge, understanding, and skills; (2) adoptability and feasibility during the trial phase (first phase); and (3) effectiveness, efficiency, and policymaker support during the installations.

Adoption has been measured in a formative sense by determining initial interest to innovate; operationally, this can include interviewing or surveying supervisors, the public and teachers, to determine support (Gross, et al., 1971; House, 1974), or determining the amount of requested materials and reviewing critiques of the materials (Jacobson et al., 1978). Degree of implementation has generally been determined by evaluation of teacher behavior and attitudes (House, 1974; Loucks and Hall, 1977; Mahan, 1975; Stufflebeam, 1966).

Loucks and Hall (1977) and Mahan (1975) present measures of implementation which can be easily used longitudinally throughout the adoptive implementation period by school staff and administrators. Loucks and Hall (1977) use a seven stage "concerns" scale which the teacher may use to evaluate training received, skills, and knowledge about the innovation while a seven stage behavioral scale list may be used to generate behavioral criteria. Mahan (1975) presents a feasible strategy which can be used for teacher-student self evaluations in implemention of an adopted innovation. Observable classroom behaviors were used as qualitative indices and these had originally been generated by a panel of participating teachers and their administrators. Other measures of adoption which suggest institutionalization of a program in an adopting school or school district are given by Schumacher, (1972); these are inclusion of the program in the school or school district budget and school staff perceptions of the innovation as part of the "regular" program or as part of "basic" education.

In addition to the number and quality of adoptions, the Stanford Research Institute used three other criteria to the accomplishments of the National Diffusion Network. They are: its ability to help local districts improve their programs; its ability to help districts meet state and federal requirements; and cost effectiveness, or return on the federal investment (Far West Laboratory report, 1978).

III. FACTORS RELATED TO PROGRAM SUCCESS

In addition to assessing the state of the art in measuring the effectiveness of educational innovations, the literature review was also concerned with investigating factors related to program success. This area of inquiry addresses the internal operations of projects as well as other factors that are related to the impact and spread of innovations.

The investigation revealed that the subject of program success has been covered extensively. The results of the literature review are discussed in this section under the headings: General Literature, Project Characteristics, Dissemination Strategies, Factors Related to Continuation, and Factors Related to Adoption/Adaption.

A. General Literature

The general literature consists mostly of theoretical and organizational discussions of innovation. For example, several authors present the processes of innovation, dissemination, and knowledge utilization within the framework of organizational structures and linkage systems. (Havelock, 1973; Rippey, 1973; and Marquiles and Raia, 1972). This literature review is, by no means, an exhaustive study of the pursuits in this area. Rather, only a few such works were reviewed to provide a background for the main focus of the study.

At a more pragmatic level, Morphet & Ryan (1967) summarize the proceedings of a conference which focused on educational planning and change in 1980. Brickell (1961) presents a statewide demonstration program plan which would allocate the responsibility for educational research and development to state and local governments and various organizations. He proposes that dissemination of proven programs be done through regional groupings of schools.

B. Project Characteristics

Several characteristics are mentioned in the literature as being important for project success. Some of the studies that have investigated this relationship are based on empirical research while others are based on observations by project participants.

Factors associated with success begin before the project is implemented. First of all, the project should present an innovative approach to a demonstrated need. Secondly, adequate time and effort should go into planning. In addition, a supportive institutional setting and a dedicated project director

and staff are important. However, the characteristics mentioned most often as being associated with project success are interrelated and include: sound management, an evaluation plan built into the project design, clearly stated objectives, clearly defined roles and procedures, and adequate support and training for teachers.

- The Project Should Be Innovative and Fulfill a Demonstrated Need. According to Hamilton, et al, (1978) and the New York State Education Department report (1975), a project must be innovative, fulfill a demonstrated need, be new in the district, and have the potential for wide acceptance in order to be successful. Along these same lines, Hamilton, et al. (1978) suggest that the entry-skill level of the participants be ascertained prior to project implementation.

- Adequate Time and Effort Should be Spent on Planning. In their studies of demonstration projects, Development Associates, Inc., (1975b) and Rivlin and Timpane (1975) found that project success is related to the amount of time and effort that goes into program planning and development. This effort was reflected in the proposals submitted by projects which were ultimately successful. The Project Baseline authors (1970-1974) found that the more successful projects allowed more lead time for implementation than those that were less successful. Gustafson (1978) lists several proposal review criteria.

- The Demonstration Project Should be in a Supportive Institutional Setting. Institutional support is considered a necessary prerequisite to project success. Goodlad (1975) describes the institutional setting that is most conducive to innovative programs while Schumacher (1972) discusses organizational fludity. The Rand study (1974-1975) suggests that the project design should be readily adaptable to the reality of the setting.

  Several authors mention the necessity for institutional support and cooperation from administrators, teachers, parents, and the local school district (Development Associates, Inc., 1975b; Rand 1974-1975; Schumacher, 1972; Giacquinta, 1973; Gross, et al., 1971; Project Baseline, 1970-1974). In addition, Development Associates (1975b) and Giacquinta (1973) think that including all individuals who might be affected by the project in the planning is a valuable aid in increasing motivation to participate.

  Gooler & Ely (1972) state that existing roles of various people, goals of the department or school, and operating procedures also impinge on the innovative project. Furthermore, Gross, et al. (1971) found that project failure was, in part, attributable to the lack of compatibility between organizational procedures and the innovation.

Schumacher (1972) points out that the ease with which project components can become part of the regular curriculum is related to success and longevity. Along these same lines, the New Educational Directions, Inc. report (1977b) recommends that selection of curriculum materials be a planned process to insure infusion into the regular curriculum structure.

- The Project Director and Staff Should be Dedicated. Dedication of the project director and staff is necessary for the success of the innovation. They need to have the ability and willingness to concentrate their efforts and resources on project objectives (Development Associates, 1975b). The Rand study (1974-1975) states that the more concentrated the resources, the more likely change is to occur. Furthermore, the project director needs to assume a strong and relevant advocate role for the project to survive (House, 1971). This requires enthusiasm and commitment (Project Baseline, 1970-1974).

- The Project Should Have a Sound Management Plan. Sound management is important to project success, particularly fiscal management. Weatherford, et al. (1978) recommend the management by objectives (MBO) system of program administration as a feasible technique. Schumacher (1972) and the Project Baseline authors (1970-1974) emphasize the importance of a planned rationale for project activities. Project success, according to Harmes (1970), depends on increasing efficiency and reducing undesirable side effects. This requires ongoing monitoring by management (Carkhuff, 1978). In addition, the New Educational Directions, Inc., report (1977b) suggests that the number and distance between sites served by a single project be kept at a manageable level.

  Sound fiscal management (Development Associates, Inc., 1975b) and adequate cost recordkeeping (General Accounting Office, 1976) improve the chances of project success. Hamilton, et al. (1978) suggest that cost data be kept so that reports can be made by: (1) per pupil and total activity costs; (2) direct and indirect costs; and (3) fixed/variable costs. These data are needed as supporting evidence that the project is cost effective for replication purposes (New York State Education Department, 1975). McKinney (1971) states that more emphasis should be given to cost analysis studies.

- An Evaluation Plan Should be Built Into Project Design. Building adequate evaluation measures into the project design is a characteristic often mentioned as contributing to project success. Stufflebeam and Foley (1971) state that different types of evaluation are necessary for project success. Input evaluation considers the capabilities of the responsible agencies and the strategies for

achieving program goals. Context evaluation defines the relevant environment, identifies unmet needs and unused opportunities as well as diagnosing problems that prevent these needs from being met. It focuses on the macro and social systems level of analysis. Process evaluation provides the basis for interpreting outcomes, and for replication and refinement of procedures. Instrumental objectives may be included in the process evaluation as intermediate objectives which lead to ultimate objectives. MacDonald (1973) gives some criteria that should be used in a process evaluation. Product and summative evaluations concentrate on project outcomes.

Stufflebeam (1966), McKinney (1977), Stufflebeam and Foley (1971), Gooler (1977), and the General Accounting Office report (1976) emphasize the need for formative and summative evaluations. The New Educational Directions, Inc's. (1977b) report recommends that an evaluation plan related to the projects' stated objectives be designed early so that baseline data can be obtained.

Formative evaluation should be used as a continuing program monitoring device for decision-making (House, 1973; and Rivlin and Timpane, 1975) so that necessary adjustments can be made in project activities to keep the project targeted on its stated goals (Gooler, 1977; McKinney, 1977; New Educational Directions, Inc., 1977b). Included in the formative evaluation should be the frequent assessment of student progress rather than relying solely on pretest/posttest evaluations (Hamilton & Mitchell, 1978). Tisdel (1976) also suggests assisting teachers in interpreting student scores from ongoing evaluation procedures and getting their input into possible program adjustments and the evaluation design.

Stufflebeam (1966), Tisdel (1976), and the Project Baseline authors (1970-1974) state that the evaluation staff and project staff should work independently but should recognize and support each other. More specifically, the role of the evaluator should be defined, particularly as it relates to administrators, teachers, students, and project staff (House, 1973).

- Project Objectives Should Be Clearly Stated.
Several authors consider clearly stated, achievable, and measurable objectives a necessity for project success (Carkhuff, 1978; McKinney, 1977; General Accounting Office, 1976; Rivlin and Timpane, 1975; Tidel, 1976). There should be process and outcome objectives so that activity effectiveness can be measured. Procedures should represent the implementation of project objectives (Hamilton, et al. 1978; New Educational Directors,Inc., 1977b) and these should be included in the summative evaluation (Schumacher, 1972). Sequential

implementation of project activities as stated process objectives is another feature of project success (Havelock, 1968; Schumacher, 1972; Development Associates, Inc., 1975b). In relation to project objectives, Hoyt (1977) discusses the generic changes identified as career education goals in several mini-conferences.

- Roles and Procedures Should Be Clearly Defined. Clearly defined roles and procedures are viewed as not only necessary for successful project implementation but also for successful replicability. Havelock (1968) states that projects need a clear division of labor with clear definitions of functions. Linkage roles need to be defined in terms of the distribution of knowledge to those who need it. Projects should be staffed with personnel who have the proper orientation and training (Project Baseline, 1970-1974) and new role requirements should be made clear (Gross, et al., 1971).

  Hamilton (1978) gives the following as some of the criteria related to project quality and effectiveness:

  1. Job descriptions and skill requirements are written for each staff position to facilitate replicability.

  2. Key components of the project are written in enough detail to facilitate replicability.

  3. Significant context details are documented to facilitate replicability.

  4. All facets of the project are amendable to wide-scale dissemination.

  5. Instructional materials are available in sufficient quantities for widespread distribution.

  6. Procedures and guidelines for the implementation and use of activity materials are specified and indicate the scope and sequence of learning tasks.

  7. Equipment required to operate the activity can be made available in sufficient quantitites to make wide-scale dessemination and implementation feasible. The cost of such equipment can reasonably be assumed to be within the reach of school districts in the United States.

  8. Activities and services required for implementation can be readily supplied to the extent necessary for wide-scale replication.

  9. Complexity of all media required is not a limiting factor.

- Adequate Support and Training Should Be Provided for Teachers
  Adequate support and training for teachers is considered necessary for maintaining teacher motivation and effectiveness. Development Associates,Inc. (1975b), Mahan (1975), General Accounting Office report (1976); Gross, et al. (1971); and Project Baseline (1970-1974) consider inservice teacher training as an important criteria for project success. Such training should not only introduce the teachers to the new curriculum but should also clarify their new roles, clarify new procedures, and clearly state the objectives of the project. Relevance of the project to students and the "teach-ability" of the package should be emphasized (Schumacher, 1972).

  Teachers should also be provided with professional guidance during implementation in addition to inservice training (Development Associates, Inc., 1975b; Gross, et al., 1971). Some schools districts provide additional incentives, such as increased pay, for teachers to participate in innovative projects to compensate for extra time and energy that is asked of them (Gross, et al., 1971) although these incentives in and of themselves do not assure project success without inservice training. Additionally, teacher motivation can be increased by including them in the planning prior to implementation and decision-making sessions throughout the life of the project (Rand, 1974-1975).

  Packard and Jovick (1978) discuss success criteria for team teaching and Mahan (1975) suggests self-evaluation criteria for teachers.

C. Dissemination Strategies

The literature that addresses Dissemination Strategies can be generally categorized as theoretical or pragmatic. The subject matter may also be discussed under the headings of "diffusion theory" or "diffusion tactics".

Clark & Guba (1965) visualize the innovation process as consisting of four parts: (1) research, (2) development, (3) diffusion, and (4) adoption. These phases are quasi-sequential from research to adoption. Each phase should have its own discretely stated goals and objectives with criteria appropriate to the phase. The New Educational Directions, Inc. ,report (1977b) also recommends that each project have stated dissemination goals which reach beyond the local community. The project should be designed so it will command a broad-based support that will facilitate dissemination, according to Guba and Clark (1974). Furthermore, the project should have a division of labor with the role and functions in dissemination clearly defined and the disseminators should be trained for the task. The project should also develop instruments to measure the success of dissemination (Havelock, 1968). Rivlin and Timpane (1975) think that large-scale dissemination should only occur after each of the

following have occurred: intensive development of each innovative model, small-scale testing, careful preparation for implementation, and special development of measurement instruments for both inputs and outcomes. They estimate that this would take ten to twelve years.

Schumacher (1972) does not believe that diffusion strategies based primarily on rationalistic, comprehensive, and systematic planing are sufficient because they fail to consider the particularistic nature of educational organizations and the competive milieu within which educational diffusion occurs. Also, it cannot be assumed that diffusion to national mass audiences will automatically lead to adoption and local purchase of a product. She suggests that the most viable approach to the diffusion of educational products is through inter-organizational exchange arrangements.

Roger lists four essential elements for the analysis of diffusion: (1) the innovation, (2) its communication from one individual to another, (3) the social system within which it is being introduced and (4) the effect over time. Scriven (1974) presents standards and a checklist which can be used to evaluate programs and products. The checklist includes evaluation of marketing (dissemination) plans.

Guba (1971), and Sieber (1968) discuss obtacles to diffusion that are inherent in the educational system. Guba (1971) postulates that the strength of diffusion interventions are not equal to the strength of the myriad obstacles to change. Therefore, a simplistic approach to dissemination, such as a newsletter, will not have an effect.

Some of the dissemination strategies found in the literature are listed below:

- Direct Personal Contact.
  (Brickell, 1971; House, 1974; Hull and Kester, 1975; Sieber, 1968; Sieber, et al., 1972; Social Service Educational Consortum, Inc., 1973). House (1974) states that the success of the diffusion effort is directly proportional to the number, frequency, depth, and duration of personal contacts. Networks of such contacts are not random. They are highly predictable and stable, strongly structured by the hierarchical nature of organizations. The influence of these forces in education is profound.

  The approach described by Sieber, et al., (1972) involves "field agents" for disseminating information to schools. They meet with prospective clients, identify their needs, refer these needs to a retrieval staff located in the state education agency who performs either computer or manual searches, and then the clients quickly receive the required information (in the form of abstracts, microfiche,

bibliographies, hardcopy, or technical assistance). Field agents also help the client interpret and adapt the information. The authors suggest that some type of dissemination extension system might be a useful strategy.

The question of whether diffusion of an innovation is a response to an expressed need or whether the developers create the market has been raised in the Social Science Educational Consortion report (1973). The authors recommend that potential users be contacted early in the development stage to maximize the effectiveness of the dissemination strategies.

The Stanford Research Institute study (1977) identifies two change agents within the National Diffusion Network who effect change: (1) the developer who operates the demonstration project, and (2) the facilitator who provides a link between the developers and potential adopters. The facilitator works within a region or state to assist in dissemination and adoption (Stanford Research Institute, 1977).

- Demonstration Project Open to Visitors.
The opening of demonstration projects to visitors is a common practice (Brickell, 1971; Cedar Associates, Inc., 1978; Guba, 1971; Giacquinta, 1973; Guba, 1968; Hull and Kester, 1975). Many projects keep a log of onsite visitors which includes names and organizations (Villoni, 1978).

  However, the authors of the New Educational Directions, Inc. (1978b) report do not think having the demonstration site available to visitors is enough. They recommend that project conduct an ongoing publicity campaign. Also, demonstration site visitors should be aggressively follow up if the program includes inservice training and consultant services after visits. If this is the case, then the sites that are provided further assistance should be limited in number and the distance between sites should be manageable. Follow up should be limited to sites where implementation seems most promising or highly probable.

- Presentation and /or Displays at Various Meetings.
Another common dissemination strategy is for project staff to make presentations at various kinds of meetings (Cardhuff Associates, Inc., 1978; Post, 1978; Brickell, 1971). In the Villoni (1978) study, a record was kept of all presentations made which included the name(s) of the presenter(s), dates, and places. The SCECAMP project used displays and a demonstration slide show at an annual conference Project personnel also made presentations at local, state, and national meetings for guidence counselors. (Abramson, 1978).

  A hoped for strategy which did not materialize in the Abramson (1978) study was for a dissemination committee to be organized and to make presentations at site, borough, and citywide conferences.

- Dissemination of Printed Matter.
The dissemination of solicited and unsolicited pamphlets, brochures, newsletters, and catalogues is an often-used strategy (Abramson, 1978; Brickell, 1971; Cardhuff Associates, Inc., 1978; Development Associates, Inc., 1975b). In the Villoni (1978) study pamphlets giving an overview or sample curricula of the project were mailed (unsolicited) and a log was kept of the organizations and individuals who were sent material. Pamphlets describing the project studied by Post (1978) were sent unsolicited to: (1) career education coordinators in all senior schools in the state; (2) regional education centers in New England, New York and New Jersey; and (3) a sample of curriculum directors and supervisors of instruction in the project state and New England. Project materials were provided to key officials and interested educators as described in the Cedar Associates, Inc. (1978) study. In addition, a number of unsolicited pamphlets were distributed nationwide. In the projects studied by Development Associates, Inc. (1975b), it was found that a unique state/local relationship can enhance the successful dissemination of project information across the state. The state Division of Vocational Education helped disseminate project materials to other school districts.

  Thirty of the most promising innovations were put into a catalogue and distributed to neighborhood schools is the study conducted by Kippitt and Fox (1973). Teachers were asked to respond to one of the following: (1) didn't understand the catalogue; (2) found nothing new in it; (3) would probably try an innovation; or (4) would like more information regarding the innovation. Sixty-three percent did not return the postcard upon which the comments were to be recorded. A second postcard was mailed to those who said they would try an innovation ; they were returned and indicated that the innovation was never tried. It was found that more face-to-face contact was required for dissemination and that the school climate needs to be more amenable to innovation.

- Dissemination through ERIC.
Dissemination through ERIC was described in the Cedar Associates, Inc., (1978) report and the study done by Clark and Guba (1965).

- Project Described in Workshop or Training Sessions.
Project descriptions or overviews were often presented before small groups in workshops or inservice training sessions (Brickell, 1971; Guba, 1968). This was done throughout the state in the study conducted by Development Associates, Inc. (1975b).

- Dissemination through Regional Labs and Demonstration Centers.
This is a diffusion strategy recommended by Clark & Guba (1965). The authors visualize regional demonstration centers as a method

for institutionalizing the diffusion process. These regional centers would utilize ERIC as part of their diffusion strategies.

Similarly, other regional and statewide centers have been used to disseminate materials. For example, a liaison was established with the Center for Career and Occupational Education in the Abramsom (1978) study and developed by Guba (1971) for the Center for Vocational and Technical Education.

- Endorsement and Support from State Educational Agencies. Acquiring endorsement and support from state educational agencies often facilitates dissemination throughout the state because it puts the state stamp of approval on the project and opens state networks for dissemination (Brickell, 1971; Development Associates, Inc., 1975b).

D. Factors Related to Continuation

Many of the success criteria discussed under the subject category "Project Characteristics" are the same as those which contribute to project continuation and institutionalization. This finding was expected since project development and acceptance within the host milieu are not only crucial to project success, but also to the project's continuance. Several authors specifically addressed factors which affect continuance (Cedar Associates, Inc., 1978; Goodlad, 1975; Hearn, 1970; Hull and Bina, 1977; Packard and Jovick, 1978; Project Baseline, 1970-1974; Rand, 1974-1975).

Besides the criteria mentioned under "Project Characteristics," Goodlad (1975) suggests that innovations should be implemented with longevity in mind. Gustafson (1978) states that a formalized effort is needed to continue innovations rather than depending on key staff people. Planned longevity may be implemented through formalized and written agreement with school principals and superintendents. Cedar Associates, Inc. (1978) reported that several projects in their study had or were going to be discontinued because the schools considered them of questionable educational value. Simlarly, Hearn (1970) found that high cost and lack of significant proof of effectiveness were related to discontinuance.

The Rand (1974-1975) study found that the decision to continue is based on weighing the following factors: (1) the project's past success; (2) the centrality or importance of the educational need served by the project; (3) the resources required for the project; and (4) the organizational-political forces inhibiting or promoting the project.

Furthermore, Rand found that vocational education projects were the least likely of all the educational demonstration projects in their study to be continued even though the school superintendents viewed them as accomplishing a high percentage of their goals. Rand concluded that these projects were able to achieve a high percentage of their goals because they were not attempting major changes but were simply adding career enrichment materials to the curriculum. Data from the superintendents indicated that add-ons are the least likely to be continued. Hypotheses that were found to be significantly related to continuance are listed in the abstract.

Hearn (1970) studied the effects of project characteristics, effects of social systems variables, and effects of superintendent characteristics on program continuation. The following relationships were found between social systems variables and continuation: (1) school districts with higher educational levels expanded and continued more projects than those with lower educational levels; (2) communities with higher family incomes had a slightly greater percentage of continuation; (3) almost half of the discontinued projects were in communities that had hired all of their last three superintendents from inside the system; and (4) the greater the number of innovations tried in the past by the school districts, the more likely to continue to innovate. The study also found that urban projects were more likely to be continued while rural projects were more likely to be discontinued. Another finding was that projects which designated a higher percent of their budgets to evaluation and dissemination were more likely to be continued than those that designated relatively small amounts for these tasks. In support of this finding, Hull and Bina (1977) suggest that continued projects collect evaluation data more frequently than those that are discontinued.

A relationship was found between adoption of an innovative project outside the host site and continuation of the project within the homesite. (Hearn, 1970; Stufflebeam 1966). Continuation is an indication of local commitment to a project that may influence potential adopters. Continuation or discontinuation may reflect project success.

E. Factors Related to Adoption/Adaption

Many documents discussed the issue of adoption/adaption in education based on theoretical, empirical or impressionistic evidence. In general the aspects discussed were: (1) definition, purpose, and stages of the adoption of innovations; and (2) contextual or situational factors which inhibit or facilitate adoption

- Varied Definitions of, Purpose for, and Phases of Adoption. There seems to be little consensus on the goal of innovation adoption which, suggests House (1971), may be detrimental to effecting educational change. Adoption can be viewed as: (a) establishing alternatives to the school system (Pincus, 1974), (b) establishing change within the system to improve it (Pincus, 1974; Sieber, 1968; Rivlin and Timpane, 1975) (c) installing an innovation in whole or in part sometimes independent of its value in promoting educational change (House, 1974; Schumacher, 1972), or (d) complementing the diffusion effort (Guba, 1968; Brickell, 1971).

  At the local setting, adoption occurs in programmatic (Guba, 1968) or psychological (Lippitt and Fox, 1973; Loucks and Hall, 1977) stages. The literature suggests that either the programmatic or psychological perspective on adoption phases can be used in developing formative measures of adoption.

- Contextual or Situational Factors Affect Adoption of Innovations. Knowledge of the characteristics of the innovation, the adopter should be considered for any innovation to be successfully adopted (Brickell, 1971; Pincus, 1974; Rothman, 1974; Schmacher, 1972; Sieber, 1968). The innovation itself should: (1) fulfill specific needs (Rothman, 1974; Shephard, 1972); (2) include goals, philosophy and methods acceptable to the adopter (Kowitz 1971; Mahan, 1975; Post, 1978; Pincus, 1974; Rivlin and Timpane, 1975; Rothman, 1974; Shuy, 1976); (3) be clear comprehensive, and physically and economically feasible (Brickell, 1971; Rothman, 1974; Schumacher, 1972; Shepard, 1972); and (4) be supported by research on student impacts (Brickell, 1971; Kowitz, 1971; Mahan, 1975; Pincus, 1974; Rivlin and Timpane 1975). Understanding of the educational context involves understanding the bureaucractic and political nature of the educational system (Marguiles and Raia, 1972; National Academy of Sciences, 1976; New York State Education Department, 1975; Pincus, 1974; Sieber, 1968) or the demographics and socioeconomic status of the potential adopting school/school district (Brickell, 1971; Rothman, 1974; Pincus, 1971; Shuy, 1976). Also of importance are the needs, motivations, practices and work situations of potential adopters such as teachers, building principals or school board members (Brickell, 1971; Kowitz, 1971; Lippitt and Fox 1973; Pincus, 1974; Rothman, 1974) or state (New York State Department of Education, 1975) and federal (Pincus, 1974) policymakers.

  Rothman's (1974) review of the literature on successful diffusion and adoption of social service innovations suggests they are associated in a positive manner with a specific type of organizational structure, certain administrative procedures and staff characteristics, and emphasis on quality products/services rather than costs and greater linkages to external influences as evidenced by interagency relationships (i.e. , with R&D organizations, practitioners, client populations). Sieber (1968) specifically

suggested a three-part strategy for inducing change in the educational system which considers its organizational structure, needed linkage system changes,and bureaucratic incentives to innovate. Many authors cite extrinsic and intrinsic incentives for adoption such as legislative/supervisory/public mandates or pressure, professional peer or research-based endorsement, and the possibility of acquiring better-trained teachers, prestige, funds or other resources (Brickell, 1971; Kowitz, 1971; Mahan, 1975; Pincus, 1974; Rothman, 1974; Schumacher, 1972; Shuy, 1976).

Program evaluation studies suggest that lack of adoption can be associated with inappropriately implemented programs (e.g., inadequate planning, insufficient teacher preparation/training, insufficient budget, unclear goals) (Gross, et al., 1971; House, 1971; Hull and Bina, 1977; Kowitz, 1971; New Educational Directions, Inc., 1977b; Rothman, 1974) and R&D Organization or federal practices (Pincus, 1974). Project Baseline (1970-1974) findings also suggest that continuous adoptation of innovations can make it hard to determine whether adoption has occurred and to what extent.

IV. SUMMARY

An extensive literature review was conducted to assess the state of the art in measuring the effectiveness of educational innovations and to identify factors related to program success. Theoretical and organizational works, journal articles, third-party evaluations, internal evaluations, technical papers, reports, and monographs were among the documents reviewed. The resulting conclusion is that a considerable amount of useful information exists in the area, but what is known is not synthesized nor consistently or widely applied. In measurement, evaluators concentrate on immediate impact rather than long term impact or the widespread use of innovations. Eventual program success depends on a number of factors which cover the entire span of a project's life.

Program effectiveness has been evaluated using measures of program outcomes, dissemination, continuation, and adoption. Program outcomes generally refer to instructional outcomes among students, teachers, other school personnel, parents, and potential employers. This includes the acquisition of knowledge, change in attitudes, or the acquisiton of skills. In additon to instructional outcomes, other outcome criteria may be changes in behavior, perceived success, or systems changes. However, by far the most often used are instructional outcome measures. Although measures of dissemination, continuation, and adoption do exist, they are not as widely used nor do they have the level of sophistication found in instructional outcome measures. In addition, the collection of follow-up data on first generation students from the host demonstration site and student outcome data from adopting sites is rare. Few evaluations have attempted to determine whether persons exposed to innovative programs have continued to exhibit the desired behavioral changes, whether the innovations are being utilized in other locations, or the resultant effects in adopting sites. The over-reliance on instructional outcome measures to assess immediate impact is probably due, in part, to three factors: (1) the comparative difficulty of quantifying other effects; (2) the additional expense involved in collecting such data, and (3) the lack of commitment or perceived responsibility for collecting additional data once the demonstration phase of the program has been terminated.

The literature abounds with suggestions for improving the effectiveness of innovative programs. Factors mentioned most often as being related to project success are adequate planning, a supportive institutional setting, and sound management which includes the use of the program evaluation as a management tool.

The most effective projects have good formative and summative evaluation plans built into the project design. Formative evaluation is used to assist in the management of the project. Having a

summative evaluation plan in the early stages of the project provides for the collection of baseline data on both project participants and a comparison group. The end products of the formative and summative evaluations are to improve the effects of the project through sound management, improve the measurement of project success, and facilitate replicability through the documentation of project strategies which lead to success. The most effective projects are designed with longevity in mind and provisions are made early for phasing in additional financial support once federal funding has terminated. In addition a viable dissemination plan is included in the project design and dissemination and eventual adoption at other sites are stated as program goals. Finally, adequate records of project participants and potential adopters are kept to facilitate follow up.

LITERATURE REVIEW SUBJECT MATRIX

LITERATURE REVIEW SUBJECT MATRIX

SOURCES \ SUBJECT CATEGORIES	GENERAL (SPECIFY)	PROJECT CHARACTER-ISTICS	DISSEMINATION STRATEGIES	DISSEMINATION MEASURES	OUTCOME MEASURES	CONTINUA-TION	ADOPTION
1. Abramson, 1978			x		x		
2. Bhaerman, 1977					x		
3. Brickell, 1961	Plan for New York State-wide Demonstration Program						
4. Brickell, 1971			x				x
5. Carkhuff Associates, Inc., 1978		x	x	x	x		
6. Cedar Associates, Inc., 1978			x	x	x	x	
7. Clark & Guba, 1965		x	x				
8. Development Associates, Inc., 1975(a)			x				
9. Development Associates, Inc., 1975(b)		x			x		
10. Dugan, 1973					x		
11. Enderlein, (no date)					x		
12. General Accounting Office, 1976		x					
13. Giacquinta, 1973		x	x				
14. Glick, 1976					x		
15. Goodlad, 1975		x			x	x	
16. Gooler & Ely, 1972		x					
17. Gooler, 1977		x			x		
18. Gross, Giacquinta & Bernstein, 1971		x			x		x
19. Guba, 1968			x				x
20. Guba, 1971			x				
21. Guba & Clark, 1974			x				
22. Hamilton & Mitchell, 1978		x			x		
23. Harmes, 1970		x			x		
24. Havelock, 1968		x	x				
25. Havelock, 1973	Process of Innovation						
26. Hearn, 1970		x				x	
27. Hopkins, 1976				x	x		
28. House, 1971		x					x
29. House, 1973		x			x		
30. House, 1974			x				x
31. Hoyt, 1977		x			x		
32. Hull & Bina, 1977						x	x

MATRIX cont'd.)

SOURCES \ SUBJECT CATEGORIES	GENERAL (SPECIFY)	PROJECT CHARACTER-ISTICS	DISSEMINATION STRATEGIES	DISSEMINATION MEASURES	OUTCOME MEASURES	CONTINUA-TION	ADOPTION
33. Hull & Kester, 1975			x				
34. Jacobson & Scheufler, 1978				x	x		x
35. Kowitz, 1971							x
36. Lippitt & Fox, 1973			x				x
37. Loucks & Hall, 1977							x
38. MacDonald, 1973		x			x		
39. Mahan, 1975		x			x		x
40. Marguiles & Raia, 1972	Innovation Theory						
41. McKinney, 1977		x			x		
42. Morphet & Ryan, 1967	Planning for Innovation						
43. National Academy of Sciences, 1976					x		x
44. National University Extension Association, 1978					x		
45. New Educational Directions, Inc., 1977(a)					x		
46. New Educational Directions, Inc., 1977(b)		x	x		x		
47. New York State Education Department, 1975		x					x
48. Ohio State University, 1972							x
49. Packard & Jovick, 1978		x			x	x	
50. Pincus, 1974							x
51. Post, 1978			x	x	x		
52. Project Baseline, 1970-1974		x				x	x
53. Rand Corporation, 1974-1975		x		x	x	x	
54. Rippey, 1973	Transactional Analysis						
55. Rivlin, 1971					x		
56. Rivlin & Timpane, 1975		x	x		x		
57. Rogers, 1962							x
58. Rosen, Olson & Cox, 1977					x		
59. Rothman, 1974			x				x
60. Schumacher, 1972		x	x	x			x
61. Scriven, 1974				x	x		
62. Shephard, 1972							
63. Shively & Davis, 1978					x		

MATRIX (Cont'd.)

SOURCES \ SUBJECT CATEGORIES	GENERAL (SPECIFY)	PROJECT CHARACTER-ISTICS	DISSEMINATION STRATEGIES	DISSEMINATION MEASURES	OUTCOME MEASURES	CONTINUA-TION	ADOPTION
64. Shuy, 1976							x
65. Sieber, 1968			x				x
66. Sieber, Louis & Metzger, 1972			x				
67. Social Science Educational Consortium, 1973			x				
68. Stufflebeam, 1966		x		x	x	x	x
69. Stufflebeam, Foley et al., 1971		x			x		
70. Tallmadge, 1977					x		
71. Texas Career Education Measurement Series, 1976					x		
72. Thomas, 1978				x	x		
73. Tisdel, 1976		x			x		
74. Tuckman & Carducci, 1974					x		
75. Villoni, 1978			x		x		
76. Weatherford, Brown, et al., 1978		x			x		
77. Welsh, & Assoc. , 1978					x	x	x
ADDENDUM							
78. Far West Laboratory, 1978			x	x	x		x
79. Gustafson, 1978			x	x	x	x	x
80. Stanford Research Institute, 1978			x	x	x		x

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ABSTRACTS

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The Systemwide Career Education Cluster-Based Articulated Model Program (SCECAMP) represented a 3 year, federally-funded project which operated from July 1, 1975 through June 30, 1978. The program had the following goals: (1) to plan, develop and implement all staff development activities operating in conjunction with the Model program; (2) to plan, develop and implement all curricular products emanating from the Model Program from the NYC Board of Education and from other local educational agencies; (3) to plan, develop and implement all counseling and support service activities for each Model site; (4) to plan, develop and implement the systematic utilization of the community as an instructional resource; (5) to disseminate information regarding the Model Program on a borough, city and nationwide basis; and (6) to conduct formative and summative evaluations of all aspects of the SCECAMP project.

Specifically evaluated were: (1) SCECAMP management operations, (2) SCECAMP - developed materials; (3) SCECAMP impacts on teachers, school personnel and site coordinators; and (4) SCECAMP impacts on students. A school staff and teacher questionnaire was developed which focused on the following: (1) background data about personnel; (2) information on the kind and extent of career education activities engaged in by participants; (3) participants' expectations for the next academic year; and (4) participants' assessment of SCECAMP activities. In order to assess SCECAMP impacts on participating students, the Occupational Characteristics, Occupational Preparation Requirements and the Career Planning Knowledge subtests of the Assessment of Career Development test battery were administered. In some cases the reading level of the students was low so the tests were administered orally. Due to the relationship between reading ability and ability to complete the Career Development test (determined by analyses of covariance and correlational techniques), there was a clear distinction between the SCECAMP and non-SCECAMP participants. With reading ability controlled, there were some gains made by the program participants regarding career development test scores. Possible effects of institutionalization of SCECAMP in the model program sites were suggested by (1) the continuance of career resource centers with local funds; (2) maintenance of career courses and infusion of career guidance; and (3) the availability of curriculum materials.

Dissemination

Efforts to disseminate the project's program included production of a large quantity of printed audio-visual and verbal

reports. Each model site agreed to publish one or more newsletters during the last year while the central office was in charge of a comprehensive newsletter collating news from all sites. The project director had used liaison meetings with the Center for Career and Occupational Education; displays and demonstration slide shows were presented at an annual conference. Project personnel made presentations at local, state and national meetings for guidance personnel.

Dissemination strategies which were hoped for but which did not materialize included (1) formation of a dissemination committee at each site,and borough and city-wide conferences, and (2) the coordination of materials for dissemination through SCECAMP sites.

Bhaerman, R.D. Career education and basic academic achievement - a descriptive analysis of the research. Washington, D.C., U.S. Gov. Printing Office, May 1977.

The author summarizes the issues involved in using academic achievement as a measure of learner outcomesin career education programs. In addition, 38 evaluations of career education programs using academic achievement as an outcome variable ıre summarized.

The majority of the studies reviewed indicate that career education is a valuable vehicle for improving academic achievement by making the basic skills more relevant for the students. Several instruments and statistical techniques for measuring academic achievement in career education programs are given. The author suggests that academic achievement be included in product evaluations of career education programs.

Brickell, H. M. Organizing New York State for educational change. Albany, New York: Commissioner of Education, 1961.

In this document, Dr. Brickell outlines a plan for state organization which he believes would correct the conditions he identifies as blocking faster educational change today. The plan would allocate definite responsibility for educational research and development between State and local government and among the various organizations which shape elementary and secondary school programs. Specifically, it calls for state financial support of special projects for the design and the subsequent field testing of new instructional approaches. These projects would be located in the schools and colleges and staffed by school and college personnel. At the local level the plan calls for regional groupings of school systems, well financed through local services, to engage actively in the dissemination of proven programs.

Brickell, H.M. Alternative diffusion strategies. In H.M. Brickell and E.G. Guba, Conceptual strategies for utilizing research and development products in education. (Occasional Paper No. 2) Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1971.

This paper discusses a three-part diffusion strategy for local educational agencies. Any diffusion effort should be grounded on a knowledge of: (1) what the innovation itself is like; (2) a familiarity with the kinds of settings it is to move into; and (3) an image of how the prospective adopter typically behaves.

The prospective adopters' attitudes, motivation, know-how, present practices and work conditions must be known so that each practitioner can be reached via somewhat different techniques. Brickell describes 10 prototypic practitioners of which any can appear in different roles in a local public school system (i.e., the ultimate adopter of an innovation). They may appear as school superintendents, as business managers, as curriculum coordinators, as directors of vocational education, as building principals, as department chairpersons, or as classroom teachers/ assistant teachers. There are also other roles outside the local public school which are instrumental to successful adoption of an innovation by the school district (e.g., universities -- to offer modifications in teacher training, State Education Agencies -- to modify rules and regulations). Brickell lists characteristics of adoption settings which have implications for diffusion techniques. These include: (1) leadership - characteristics of personnel within the administrative hierarchy, particularly higher levels; (2) power distribution - when there is intense competition such as in cases where there are power splits among teachers, unions, community groups, student activists and the school administration, conditions are not favorable for innovations, although centrally-held power, if viewed favorably, can facilitate adoption; (3) growth pattern - a new community is an inviting target for innovation; (4) size - extremes in size create barriers to innovation especially if isolated in rural areas or are in large cities; school districts with 5,000-50,000 pupils seem most susceptible to innovating; (5) personnel - cosmopolitan, career bound and professional personnel are good inside partners of external diffusion agents; (6) level of spending - receptivity to innovation increases as its spending level goes up although there may be a lower and upper ceiling in this relationship of receptivity and spending; (7) demographic type - suburban districts are probably better prospects than urban or rural due to size and growth patterns, school budget and a competitively-oriented community environment; (8) population as an innovative location - whether there is a a tradition of trying out ideas; (9) values - e.g., whether basic skills are stressed, type of academic subjects taught, emphasis of athletics, etc...; (10) curriculum content - what already is being implemented; (11) instructional practices - understanding of prior-established methods in a school; (12) schedule - any pattern of schedule that does not cut the day and the week into equal-size segments is generally favorable; schedule that allows

flexibility and can accommodate the unusual needs of an innovation or change during the year is even more favorable; (13) equipment and materials - what is already in stock; (14) facilities - buildings which are used 85% or more present a prospective new program with much competition; and (15) evaluation system - existence of a sound evaluation system, although admittedly rare, gives the diffusion agents an unusual rational local partner who has probably had experience in helping the staff select and install innovations.

Characteristics of the Innovation are also discussed. They include: (1) magnitude - what part of the total educational program does the innovation encompass? (2) completeness - does the school need assistance? If so, from where? Innovations that are complete can be diffused more readily especially if they do not require the school to discard materials/equipment; (3) complexity - simple, straightforward procedures and schedule; (4) flexibility - more easily put into action; (5) interaction with existing programs - minimum interaction with other programs greatly extends the number and kinds of settings in which innovations can succeed; (6) trial possibility - if it can be tried out first, risk for the school is reduced; (7) content - if it is new or existing subject matter, does it conform to present curriculum content?; (8) effect on student test performance - if the novel program demands abnormal amounts of teacher energy, enthusiasm or creativity, it is only suitable for a limited number of settings; (9) staff roles - does the innovation cast teachers chiefly as planners of instruction, presenters of information, managers of recitations, monitors of self-instructional process or evaluators of learning? -should emphasize that the innovation enhances the professional image of the teacher; (10) social setting - length of training of staff and program operator by the diffusion agent should be longer if the program being adopted will be operated independently; (11) equipment and materials - a single package of ready-to-use materials that will fit existing equipment and materials is best; (12) time - innovations that take too much time or cannot be scheduled conveniently into the standard blocks of the school day will be met with strong resistance; (13) space - if it requires lots of space, it will be resisted by local school districts; (14) cost - start-up and continued costs are important. Schools may be more sensitive to high initial costs than to high continuation costs; low costs greatly expand the types of schools into which the innovation can be diffused.

Diffusion tactics useful in disseminating an innovation include: (1) legislation - at both state and federal level as a form of external incentives for local school districts; (2) administrative authority - if a superintendent or principal wants something done he/she should take the time to supervise it; neutrality is not sufficient; (3) professional norms - innovations endorsed by professional leaders have a better chance of success as do innovations that do not violate normative expectations for the professional role; (4) leadership opportunities - the schools' involvement in planning the innovation will be more acceptable

than implementing an externally-validated program; (5) prestige of developers; (6) pressure from constituency - since the schools must respond to students, parents and the general public, the innovation disseminator could introduce/test out the innovation for these three to get their support; (7) command over additional resources - what new personnel, time, equipment, staffing changes will result? This is appealing to some school districts; (8) negotiations; (9) funds - supplying money for an innovation increases the likelihood of temporary adoption, i.e., during the time of funding; (10) new materials and equipment - providing materials doesn't necessarily assure implementation of the innovation; the most effective and pervasive system for distributing school materials is commercial publication or production; (11) dissemination of information - through printed materials, broadcast media, meeting and face-to-face communication; (12) demonstration - place into action and show it is feasible; (13) participation in development - builds interest, skill and commitment, but many people cannot be given this opportunity; (14) participation in a partly-finished program is a substitute to participation; (15) training - this is essential although local school districts do not like to pay for teacher training; (16) supplying research-based evidence - to buttress administrators' decisions made on other grounds.

Carkhuff Assoc., Inc. Third party evaluation final report. In G.D. Inman, Final report, project no. 502A550010, grant no. G05.75.00047, Implementation of the occupational cluster concept -- a curriculum tool for improving career development and preparation education. Battle Creek, Michigan: Calhoun Area Vocational Center, September 1978.

This report covers the complete three-year period of the Calhoun Area Vocational Center, Battle Creek, Michigan, Occupational Cluster Project beginning July 1, 1975, and ending June 30, 1978. The overall goal of the project was to demonstrate the application of the "cluster" concept as an organizational technique to facilitate the delivery of career development skills and occupational preparatory skills instruction. In addition, two important correlary goals were: (1) to effect and implement refinements in existing delivery systems and devise new ones where needed to demonstrate a comprehensive vocational education proficiency model inclusive of an individualized learner process approach; and (2) to demonstrate concepts and practices which contribute in substantial ways towards removing the current confusion as the relationship between Career Education and Vocational Education and of each to all of education. Project-specific objectives also existed and added a further dimension of specificity to the aforementioned goals although projects emphasized training and implementation regarding four major thrusts. These major thrusts included: (1) Career Development Skills, (2) Career Placement Skills, (3) Career Preparation Skills, and (4) Functional Management Systems.

Demonstration of the Vocational Education Proficiency model involved implementation strategies such as: (1) teacher-training in developing individualized vocational education curricula for students; (2) dissemination of project-developed materials (at junior, senior and post-secondary schools); and (3) validation of the career awareness and exploration model in junior and senior high schools. The entire program involved the input and cooperation of employers, middle schools, junior high schools, high schools, area vocational training centers and community colleges.

Instruments used to evaluate student outcomes included: a Career Development Inventory (Form 1) which looked at student self-awareness career awareness. and career decision-making; and Career Development Inventory (Form 4) which looked at students' ability to place themselves in the world of work. More specifically, the Form 4 evaluated five job acquisition skill dimensions --job performance, job sources, personal assets, application skills, and interviewing skills. In order to discover what students learned from employable skills training, the data were analyzed by experimental vs. treatment groups, experimental group Year 1 vs. Year 2, control group Year 1 vs. Year 2, occupational program types (e.g, cosmetology, accounting, child care, etc.) and junior vs. senior high school students.

The Career Development Inveytory Form 5 was a self-report device designed to enable program staff to describe how they perceived their delivery of services to students. Staff perceptions were elicited on the extent to which they delivered self-awareness, job and school awareness, career decision-making and planning, job and school acquisition skills, career preparation and meeting job and school requirements. The primary purpose of this inventory was to assess staff perceptions of what students were taught and verify student perceptions. Other formative criteria used to evaluate the program were monitoring of management and definition of program goals and objectives (Year 1) and program operations (Year 2).

Dissemination Activities were drawing up: (1) list of organizations/groups which attended presentations about the project; (2) list of in- and out-of-state individuals who requested information about program.

Cedar Associates. Final evaluation report for Project Bridges "Spanning the gap between education and earning a living," project no. 502A150001D, grant no. G310-75-0007. Keene, New Hampshire: Cedar Associates, June 1978.

Project Bridges was a three-year exemplary vocational education project designed to eliminate the gap between school and earning a living for the youth of the Somersworth School District. The project was located in Somersworth, New Hampshire, a semi-rural area in the southeastern part of the state. All elementary (5) middle (1) and high (1) schools in the district participated in the project.

The third party evaluation team was comprised of five evaluators who were on-site at least quarterly to assess fulfillment of program objectives. Although an evaluation design was developed by the evaluation team, it does not appear in this report. Many of their conclusions were based on subjective criteria regarding whether there was implementation of programmatic objectives.

Below are described the program's objectives and how the evaluation team measured the degree of implementation.

1. To develop a K-12 continuum of career guidance:
   - random check of teachers to see if curriculum is being used although no documentation of how this was done is provided
   - product development: Career Path booklets were developed by project and teacher awareness regarding these booklets.
2. To develop a system for providing guidance services to vocational students after their selection of a vocational program through completion, employment and followup. As described, this objective involves:
   - implementation of a system to ensure that all students receive guidance services at prescribed times, measured by review of student records and interviews with vocational teachers and vocational director.
3. To appraise existing vocational programs and develop appropriate program expansion in five (5) occupational clusters; measured by:
   - evaluation of the needs assessment procedure and implementation procedure
   - number of new curricula
   - number of new community training sites (40 was an acceptable number)
   - development of a more positive interrelationship between and among all faculty members towards vocational education (no measure device was cited)
   - number of curricula phased out
   - extent to which program developed an outreach program for "disenfranchised and alienated youth."
4. To develop no less than 20 public training stations and instructors during the first year of operation and during the second year to add an additional 20 sites and instructors located within the private sector; measured by:

- number of training sites (total, attritution) 47 training sites have been provided in three years although only five were discontinued due to questionable educational value and two sites indicated a desire to not continue

- evaluation of the planning and implementing process regarding establishment of community sites

- affective or attitudinal development

- learner outcomes relative to task analysis

- followup studies of students who were enrolled in community site training during the first two years to discover satisfaction with project and student orientation in project, training provided in terms of skills needed for the job and trainers' competence. No documentation was given regarding how the followup was conducted (measures, data, etc.)

- cost: tuition per student per credit in vocational programs in school vs. cost for tuition per student per credit in community site training

- product: a manual regarding how to implement community site training was developed.

5. To articulate career-related activities from elementary school through middle school into high school to the point of selection of a vocational program. As described, this objective involves development and use of a skills checklist indicating a continuum of skills for each vocational program:

   - evaluation of the procedures used in developing the checklist

   - teachers' awareness of the checklist once developed

   - teacher use of checklist or why not used

   - review of student records to see if files contained information relative to course objectives.

6. To provide for those with special needs by helping teachers develop an awareness and expertise in dealing with vocational special needs students (special needs students are not defined in the report); as measured by:

   - evaluation of the procedures used into identifying and helping special needs students

   - teacher attitudes regarding awareness, understanding and ability to cope with special needs students (questionnaire distributed in May 1978)

- informal interviews with special needs students.

Besides evaluation of goal attainment, the third party evaluation looked at resource allocation (percent expenditures allocated to each of six major objectives and general management), administrator/policy-maker views and the dissemination efforts of the project.

Particularly important was the school board's willingness to continue to staff/operate the project's community training site component with local funds. The evaluators' criteria for assessing dissemination efforts included mention of their subjective views regarding the publication development process and the quality of the publications. Other criteria used were:

- Use of ERIC as a dissemination device for project-developed materials;
- Numbers of solicited or unsolicited project-developed materials distributed within the state or nationwide to key officials or interested educators;
- Number of unsolicited pamphlets which describe the project that were distributed nationwide; and
- Number of visitors to the project.

Clark. D.L. & Guba, e.g. An examination of potential change roles in education. Paper presented at the seminar on Innovation in Planning School Curricula, National Education Association, Washington, D.C., October 1965.

Change roles in educational innovation have either not been taken at all or have been inappropriately or inadequately taken. By dividing the innovation process into four parts -- research, development, diffusion and adoption -- phases within each division can be identified, criteria set up and evaluations made. Also, with attention to this four-part division of the innovation process, change roles for each phase may be assigned to agencies and universities, state governments, publis school systems, foundations, and researchers in diverse disciplines. Particular emphasis needs to be placed on the following suggestions: that schools of education establish graduate programs to train educational engineers, quality control experts and educational field agents; that local school systems redirect their efforts in research and curriculum to focus on development; and that state education agencies and the Office of Education view the Elementary and Secondary Education Act of 1965 as a vehicle for establishing a strategy of educational change.

Mention is made of Brickell's Organizing N.Y. State for Educational Change (1961). Limitations of the model presented here are: (1) conceptual, not empirically vested; (2) assumes

uni-dimensional analysis of change roles when in fact, they are multi-dimensional. Chin* has projected five classifications of change: substitution, alteration, permutation and variation, restructuring, and value orientation change.

Other characteristics of the model are the following: (1) for each of the model phases and stages, goals and objectives must be stated discretely, appropriate criteria established in terms of which phase can be evaluated and assessed; (2) evaluation is appropriate and needs to be conducted at each stage; and (3) quasi-sequential from research to adoption.

The second part of this paper gives recommendations. Regarding research, there are four recommendations: (1) professional schools and colleges of education must accept the production of new knowledge as an objective equally important with training of professional personnel; federal and operational agencies must support individual and institutional programs of research and research training; educational practitioners should have a more favorable and open attitude towards evaluations in the schools; (2) multi-discipline research should be done in universities; (3) local agencies should view research as more than just to advance knowledge in education; and (4) the educational community should take full advantage of funding possibilities offered by USOE in the research and development centers and regional educational labs with an interdisciplinary approach.

Recommendations given about the development phase included: (1) colleges and universities must take on this role including teacher and personnel training; (2) local school agencies should utilize the colleges and universities instead of "going it alone"; (3) OE should establish a nationwide communications network to tie together the components of the regional and area development centers; (4) state education agencies should also establish a communications network within them and also consider employment of technical consultants on various phases of development; and (5) private foundations should re-enter the phase of development.

Recommendations about diffusion include: (1) USOE should use ERIC as a diffusion mechanism; (2) the states and regional labs should have input and access to ERIC; (3) regional labs and demonstration centers (i.e., local school district centers) should be conceived of and planned as a national network for the demonstration of educational inventions and as the "key" institution for an expanded program of direct demonstration in local districts.

Recommendations about adoption: (1) each and every school system should belong to an interagency compact (e.g., regional educational lab) for educational change, allocating needed resources to become an active participant; (2) each district should identify

*Chin, R. Models and Ideas About Changing. In Symposium on Identifying Techniques and Principles for Gaining Acceptance of Research Results on Use of Newer Media in Education. Lincoln, Nebraska: University of Nebraska, 1963.

internally or employ high-level personnel (master teachers) whose duties are to: liaison between the district and outside change agencies, mount and carry out demonstration and trial projects within the district and to work with teachers and other personnel engaged in installing and institutionalizing innovations; (3) a quality control center should be established in those districts large enough to justify its existence (or by inter-district arrangements) to conduct formative and summative evaluation of the innovation within the school system; and (5) a development division should be set up for coordination of the activities developed and work on problems of implementation.

FIGURE 1*

A CLASSIFICATION SCHEMA OF PROCESSES RELATED TO AND NECESSARY FOR CHANGE IN EDUCATION

	RESEARCH	DEVELOPMENT		DIFFUSION		ADOPTION		
		INVENTION	DESIGN	DISSEMINATION	DEMONSTRATION	TRIAL	INSTALLATION	INSTITUTIONALIZATION
OBJECTIVE	To advance knowledge	To formulate a new solution to an operating problem or to a class of operating problems, i.e., to innovate	To order and to systematize the components of the invented solution; to construct an innovation package for institutional use, i.e., to engineer	To create widespread awareness of the invention among practitioners, i.e., to inform	To afford an opportunity to examine and assess operational qualities of the invention, i.e., to build conviction	To build familiarity with the invention and provide a basis for assessing the quality, value, fit, and utility of the invention in a particular institution, i.e., to test	To fit the characteristics of the invention to the characteristics of the adopting institution, i.e., to operationalize	To assimilate the invention as an integral and accepted component of the system, i.e., to establish
CRITERIA	Validity (internal and external)	Face Validity (appropriateness) — Estimated Viability — Impact (relative contribution)	Institutional Feasibility — Generalizability — Performance	Intelligibility — Fidelity — Pervasiveness — Impact (extent to which it affects key targets)	Credibility — Convenience — Evidential Assessment	Adaptability — Feasibility — Action	Effectiveness — Efficiency —	Continuity — Valuation — Support
RELATION TO CHANGE	Provides basis for invention	Produces the invention	Engineers and packages the invention	Informs about the invention	Builds conviction about the invention	Tries out the invention in the context of a particular situation	Operationalizes the invention for use in a specific institution	Establishes the invention as a part of an ongoing program converts it to a "non-innovation"

*page 20

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Development Associates, Inc. An evaluation of vocational exemplary projects. Washington, D.C.: Office of Education, Department of Health, Education, and Welfare, March 1975(a)

The primary purpose of this study was to evaluate the effectiveness of the first round of federally administered Part D projects and their components in terms of the extent to which student outcomes attributable to project activities conformed to the legislative intent for Part D funds. This included performance and a cost analysis for each project, with a focus on the relation of cost to student outcomes and project progress measures, and an assessment of the influence of projects and their components on other schools and school systems in their states. The study approach included review of available documents and onsite visits to 50 projects and State Departments of Education.

The following criteria were used to measure student outcomes:

1. Ability of student participants to identify greater number of occupations than non-participants.

   1a. Absolute number of occupations:

   Each student was asked to "write the names of as many jobs or occupations as you can think of" on a page consisting of two columns of 24 blank lines in each column. For this criterion the scoring was in terms of the number of items listed which could be assigned a code number from the Dictionary of Occupational Titles (DOT). A t-test was used to determine whether a statistically significant difference existed between the means of the two groups, i.e., participants and non-participants, for each student group, on both an overall and a project-by-project basis. For each test, the null hypothesis was: Ho: $\mu_p = \mu_{np}$; that is, no difference exists between the mean score of the participant and non-participant groups. The probability of falsely rejecting this hypothesis was set at the 5% level (i.e., $\alpha = .05$). Values at the 1% level were also noted.

   1b. Variety of Occupations:

   The responses to the questions yielding an indication of the number of occupations were also analyzed to provide an indication of the variety of occupations reported by each student. Coding was in terms of the number of different two-digit DOT codes contained in each student's response. For example, while a student who listed all nine positions on a baseball team would have received a score of "9" in terms of the absolute number of occupations listed, he would receive a score of "1" in terms of variety. As with the first criterion, a t-test was used to determine whether there was a significant difference between the two groups in each project and across all projects.

2. The ability of students to demonstrate more familiarity with tasks and functions associated with selected occupations than the comparison group.

   Each student was asked to complete Part 2: Knowing About Jobs of the Career Maturity Inventory. Each of the 20 items in this sub-test begins with a brief description of a job performed by a person. Following the description are four occupational titles. Students are asked to select the occupation corresponding to the job description or to indicate that they "don't know." Scoring was in terms of number right as a percentage of the number attempted; if fewer than half were attempted, the student was treated as a non-respondent. A t-test was used to determine whether a significant difference existed between the means of the two groups, ie.g., participants and non-participants, for each student group on a project-by-project basis. For each test, the null hypothesis was: Ho: $\mu_p = \mu_{np}$; that is, no difference exists between the mean score of the participant and non-participant group. The probability of false rejecting this hypothesis was set at the 5% level ($\alpha = .05$). Values at the 1% level were also noted.

3. The ability of student participants to demonstrate more familiarity with the requisites associated with employment in selected occupations than the comparison group.

   Two sub-scales of the Career Maturity Inventory (CMI) were used in answering this question. While they are the best measures relative to this question which could be found, it must be noted that both were designed to measure more than simple familiarity with the requisites associated with selected occupations.

   The first sub-scale was specifically developed to assess a student's ability to "match up" psychosocial characteristics with those required in selected occupations. The second was specifically developed to assess a student's competency in utilizing specific knowledge of career requisites in planning.

   3a. Each student was asked to complete Part 3: Choosing a Job of the CMI:

   In each of the 20 items in this sub-test, students are given a description of a person, followed by four occupational titles. Students are asked to read the description of each person and then select the occupation they think is the "best" one for that person or to indicate they "don't know." Scoring for this and all other sub-scales of the CMI was as described for Question 2. A t-test was used to determine whether a significant difference existed between the means of the two groups, i.e., participants and non-participants, for each student group on a project-by-project basis and

across all projects. For each test the null hypothesis was: Ho: $\mu_p = \mu_{np}$; that is, no difference exists between the mean score of the participant and non-participant group. The probability of falsely rejecting this hypothesis was set at the 5% level ($\alpha = .05$). Values at the 1% level were also noted.

3b. Each student was asked to complete Part 4: Looking Ahead of the CMI:

In each of the 20 items in this sub-test students were given an occupational title and three steps that a person could complete to prepare for and enter this occupation. Students were then given four ways in which these steps could be ordered. Each student was asked to read the occupational title and the steps and then select the correct order for completing the three steps, or to indicate "don't know."

As with the first criterion, a t-test was employed to determine if a significant difference eixsted between participants and non-participants on a project-by-project basis and across all projects. The null hypothesis was: Ho: $\mu_p = \mu_{np}$ for each project and across all projects. Again α was set at the .05 level.

4. The ability of student participants to score higher on pre-vocational, job readiness tests than non-participants.

No standardized instruments relative to this question were identified. As a result, two sets of questionnaire items were developed. During the pre-test site visits, students at each grade level were asked to complete the items and discuss them with a member of the study team. The items were also reviewed for face validity by staff of Part D projects during the field test visits and by individuals with extensive experience in the field of job training and placement.

4a. The first set of items, designated Job Readiness: Knowledge, was designed to assess information pertaining to the world of work which indicated job readiness. Twenty factual statements to be checked as either "true" or "false" (Questions 10 through 29 of the Student Questionnaire) were asked of each student. The test was scored by giving one point for each correct answer and summing the points. A t-test was used to determine whether a significant difference existed between the means of the two groups, i.e., participants and non-participants, for each group on a project-by-project basis and across all projects. For each test the null hypothesis was: Ho: $\mu_p = \mu_{np}$; that is, no difference exists between the mean score of the participant and non-participant group. The probability of falsely rejecting this hypothesis was set at the 5% level (i.e., $\alpha = .05$). Values at the 1% level were also noted.

4b. The second set of items, designated Job Readiness: Attitudes, consisted of seven statements pertaining to various preferences and attitudes concerning work and career planning (Questions 30 through 36 of the Student Questionnaire). The test was scored by means of a five-point agreement scale, with the scale reversed for items in which disagreement was the more favorable response. The score for each of the items was then summed for a total score. As with the first criterion, a t-test was employed to determine the difference between the participating and non-participating groups on a project-by-project basis and across all projects.

5. Student participants demonstrate more positive attitudes toward employment then non-participants

The Attitude Scale of the Career Maturity Inventory was used as the indicator of positive attitudes toward employment. The Attitude Scale consists of 50 statements pertaining to individual "attitudes and feelings toward making a career choice and entering the world of work." Each student was asked to indicate whether he agreed or disagreed with each statement. As with the other sub-scales of the CMI, scoring was in terms of percentage right, if more than half of the items were attempted; if fewer than half were attempted, the student was treated as a non-respondent. A t-test was used to determine whether a significant difference existed between the means of the two groups, i.e., participants and non-participants, for each student group on a project-by-project basis and across all projects. For each test the null hypothesis was: Ho: $\mu_p = \mu_{np}$; that is, no difference exists between the mean score of the two groups. The probability of falsely rejecting this hypothesis was set at the 5% level ($\alpha = .05$). Values at the 1% level were also noted.

6. Student participants consider a greater variety of careers than non-participants

Each student was asked to respond to the question: "What are all the different kinds of work you might like to do when you grow up?" This was Question #9 of the Student Questionnaire. Responses were coded to reflect the number of different two-digits DOT job codes included in each student's response. The categories used for analysis were 1, 2, 3, 4, and 5 or more different two-digit DOT codes. Results were analyzed using the chi-square test.

7. Student participants indicate more positive attitudes toward guidance and counseling than non-participants

All 9th and 12th grade students were asked whether they would like to meet their counselor more often (Student Question #48). In addition, those who indicated that a counselor had talked to them individually about their future work were asked if this had been helpful to them (Student Question #43a), and

those who indicated that a counselor had talked to them individually about how to prepare for their future were asked if this had been helpful to them (Student Question #44a). Twelfth grade students were asked three additional specific questions in the same vein, dealing with helpfulness of a counselor having talked to them about getting a job, applying to college, or getting vocational or technical training (Student Question #50). All of the items call for No/Yes responses. Comparisons were made between participants and non-participants by means of chi-square, using the 5% level of confidence for rejecting the null hypothesis of no difference.

8. More student participants have a career plan than non-participants.

   At all three grade levels, students were asked to choose one of nine alternatives describing the plans they have after high school (Question #4 in the Student Questionnaire); the responses to this question were then analyzed in terms of the "don't know" option vs. all other options to identify those who did and did not have a career plan. In addition, students at the 9th and 12th grade were asked directly whether they have a plan for preparing for the work they want to do in the future (see Question #49 in Student Questionnaire); this was a No/Yes response option. Results were analyzed using the chi-square test.

9. Student participants include further training or education as a portion of their career plan than non-participants.

   Students in the 9th and 12th grades who indicated that they had a career plan were asked to describe their plan on blank lines in the student questionnaire (see Student Question #49a). Each response was coded by a DA staff member to reflect whether it included further training or education.

10. Student participants cite their career preference as their expected career than non-participants.

    In addition to being asked to cite "the different kinds of work you might like to do ..." (Student Question #9), 12th grade students were also asked what kind of work they think they will be doing "10 years from now" and "20 years from now" (Student Question #41e, d). The response to the career preference question and to the expected work questions were compared for each student by DA coders, who noted whether any DOT two-digit code in the former question was the same as any DOT two-digit code in the latter questions. The difference between the participants and the non-participant groups in the extent to which career preference was the same as a career expectation was then tested by means of the chi-square technique.

11. More student participants cite vocational education as their future career than the comparison group.

    The responses of each 12th grade student to the question of the kind of work they think they will be doing in the future (Student Question #4c, d) were coded to indicate whether a job associated with the field of vocational education was cited. It was found that, on a national basis, only 12 participants and 5 non-participants cited some form of vocational education as their future career. These frequencies were too small to warrant further discussion.

12. Students evidence behavioral gains as a result of participating in Part D project activities.

    Initially, it was hoped that direct comparisons between participating and non-participating students would be possible. However, procedures for these comparisons could not be developed, and as a result it was decided to obtain an indication of the effect of project activities through a series of questions asked of participating teachers. Specifically, teachers were asked for their opinion of the effect of "the inclusion of career education activities" with respect to tardiness, absenteeism, discipline problems, and general interest in school. For example, each teacher was asked whether career education activities increased or decreased tardiness.

    The responses were analyzed in terms of the proportion of teachers in each project who said there was an increase or decrease in each of the four behaviors. In addition, the responses of all teachers over all projects were analyzed to determine whether there was a difference between teachers who primarily taught students at the elementary grades (1-6), middle school grades (7-9), and senior high school grades (10-12). To assess the differences between teachers at the three grade levels, the following hypothesis was investigated:

    > Ho_i: The proportion of "yes" responses by teachers in the elementary, middle, and senior high school grade levels is the same. The chi-square test was employed with =.05.

13. A greater number of students who have graduated from school and who participated in the Part D project are employed full-time or are engaged in further training than students who did not participate.

    Time and resource constraints did not permit a study design providing for the actual follow-up of graduates. Rather, the design relied on information which was to be obtained from school records. Specifically, information was sought with regard to the work status during the first year after graduation of students who graduated from school the year prior to the initiation of the Part D project and of students

who graduated at the end of 1972-73 school year. Comparisons were to be made of changes which occurred over time for participating and non-participating students.

Development Associates, Inc. Evaluation of vocational exemplary projects (Part D) and development of a guide for evaluating career education (final report). Washington, D.C., October 1975(b).

This report is a supplement to the reports resulting from two related but distinct efforts: the evaluation of the Vocational Exemplary Projects funded under Part D of the Vocational Education Act of 1963 and the development of a guide for the evaluation of career education. Part III of the report contains three case studies of successful exemplary vocational education projects. Following is a summary of relevant information from the three case studies.

Student Outcomes

1. Students participating in the project were able to name a significantly greater number and variety of occupations than non-participants. (Comparison groups were used.)

2. Participating students demonstrated significantly greater familiarity with tasks and functions associated with selected occupations (as measured by Part 2 of the Competency Test of the Career Maturity Inventory) than non-participants. (Comparison groups were used.)

3. Participating students demonstrated significantly greater familiarity with the requisites associated with selected occupations (as measured by Parts 3 and 4 of the Competency Test of the Career Maturity Inventory) than non-participants (using comparison groups).

4. Participating students scored significantly higher on a scale indicating job readiness knowledge than non-participants; and participants scored significantly higher than non-participants on a scale assessing job readiness attitudes.

5. Participating students demonstrated significantly more positive attitudes toward work (as measured by the Attitude Scale of the Career Maturity Inventory) than non-participants.

In reviewing information form the three projects, several factors appear to be related to their relative success:

1. A considerable amount of time devoted to project planning and development.

2. Planning took place at several levels. Teachers, students, and community personnel were involved. All individuals who might be affected by the project were included in the planning

stage. This was done to increase commitment and decrease resistance. This, in turn, may have contributed to the success during the three-year grant period and to the subsequent continuation of the project with local funds.

3. Consistent with the planned approach, the project was implemented in a number of phases, each phase building upon the experiences gained from the last. This project started off with seven pilot elementary schools, eventually expanding to include the junior and senior high schools. Studies of a variety of projects in various contexts indicate that implementing educational change can often be most effective when small incremental steps are taken in the change process. The pilot study schools served as sources from which information for expanding the project could be gained. Thus, the experience gained in a few schools could be used as the feedback needed to revise the project once it went into its second year.

4. Sound fiscal management is also a factor.

5. A great deal of emphasis was placed on teacher training. Provisions were made for inservice training for which teachers were given credit. These sessions were used to clarify project goals, expectations, and role responsibilities as well as providing practical methods for implementing the project. Inservice sessions allowed for the development, utilization and assessment of teacher-made career education materials which increased teacher input and motivation. Graduate credit was given for the course by a local university.

6. Finances were increased by combining two sources of Part D funds at a single project.

7. Teachers were provided with professional guidance and help in implementing the career education activities.

8. A unique state/local relationship supported the project and enhanced the successful dissemination of the project information across the state. The SEA developed a close working partnership with the school system in which the state shouldered the administrative burden for the project and supplied a service to the district.

9. These projects were in relatively small school districts. The conclusion that a large school district is more likely to be successful does not appear warranted. Instead, success depends more on the ability and willingness of the project staff to concentrate their efforts.

Summary: Planning, Insuring Teacher Commitment, Inservice Training, Sound Project Management, Coordination with the State, Project Size and Scope appeared to be most relevant.

Methods of Dissemination

Project newsletter, staff visited other school districts; training sessions and workshops were provided for school personnel throughout the state. Within the school district, the project was continued after federal funding was terminated with little or no change. The State Division of Vocational Education helped disseminate project materials to other school districts.

Dugan, C.L. A study of attitude change and achievement in an innovative program of the junior high school level. Ann Arbor, Michigan: Ann Arbor Board of Education, 1973.

This is an evaluation of the Small House Program for 100 7th grade students. Questions answered by the evaluation were: (1) Do Small House students show gains in performance on standardized reading and arithmetic achievement tests compared to those in other classes?; (2) Do Small House students show a more positive attitude towards school as compared to students in other classes?; and (3) Are there characteristic differences in teacher and student behavior between Small House and other classes?

Standardized tests, observations, and project designed questionnaires were used to evaluate the project. Results are discussed and a system model for project evaluation is posited.

Enderlein, T. Monographs on career education: a review of career education evaluation studies. Washington, D.C., Office of Education, U.S. Department of Health, Education, and Welfare, (no date)

The monograph summarizes the evaluation data from several studies in the specific areas of career awareness. Career decision-making, and academic achievement, and in the general category of other ways to determine program effectiveness.

Career Awareness

Although the concept of career awareness has varying definitions, most contain two common elements: (1) the various aspects of the world of work, and/or (2) self-knowledge of attitudes, values and interests of the student as they relate to the world of work. Table 1 summarizes some techniques used to measure career awareness.

TABLE 1

STUDIES REVIEWED BY TUCKMAN AND CARDUCCI RELEVANT TO CAREER AWARENESS AND SELF-AWARENESS

Author and Site of Study	Grade Level	Instrument	Analysis	Findings
Cochran and Weis (1972) Dayton, Ohio	9-10	Ohio Vocational Interest Survey	Analysis of covariance	"...students from the vocational school were better informed about career choice..."
Holstein (1972) Lincoln Co., West Virginia	1- 6	Homemade test of Occupational awareness	Analysis of covariance	"...career education students outperformed control students on all measures."
Ovard (1973) Utah	6	Not specified	Chi-square	"...students showed favorable change in attitude toward work..."
Sims (1973) Cleveland, Ohio	5- 6	Job information questionnaire	Analysis of variance	"...treatment schools' students had acquired more job information than the control."
McNulty (1974) Massachusetts	11-12	Career Maturity Inventory	Analysis of covariance	"...positive correlation between scores for all students..."
Warren (1974) Kansas	6- 8	Career Maturity Invevtory	t-test	"...significant differences in mean scores in favor of treatment group."
Bariolo (1972) Alameda Co., California	Elementary	Occupational Information Survey	t-test	"...yielded greater gains for treatment students than for controls at elementary level."
Cunningham (1973) New Britain, Conn.	Elementary	How I See Myself Scales	t-test	"...showed significant differences between the control and experimental groups."
Dennard (1973) Clayton Co., Georgia	4	Student Knowledge of Careers	not specified	"...fourth graders in program had great knowledge of career than those not in program.

TABLE 1 (Cont'd.)

Author and Site of Study	Grade Level	Instrument	Analysis	Findings
Holden (1973) South Carolina	Elementary	A battery of cognitive and affective instruments	not specified	"Kershaw and Chesterfield counties were fairly successful in efforts to teach elementary school students about careers."
Peck (1973) District of Columbia	K- 9	Self Observation Scale	not specified	"...showed CDEP children to have better self-concept than controls."
Peck (1973) District of Columbia	K- 9	Work Attitude Survey	not specified	"...revealed CDEP students had more positive attitudes toward work than controls."
Peck (1973) District of Columbia	7- 9	Occupational Values Inventory	not specified	"...students were realistic in their career planning."
Peck (1973) District of Columbia	6- 9	Career Awareness Development Inventory	not specified	"...students were able to relate school-learned skills to work situations at reasonable level of proficiency."
Young (1971) New Orleans	1- 8	Attitude Toward Work Inventory	t-test	"A significant positive gain was found for students in grades 1-8."
Harmond (1973) Harrington, Maine	7	Occupational Knowledge Test	t-test	"...significant gain in mean scores of seventh grade students.

General Accounting Office. Career Education: status and needed improvements. Washington, D.C.: General Accounting Office, Division of Manpower and Welfare, 1976.

The report discusses the status of 14 OE-funded career education programs sponsored by the Office of Education (OE) and the National Institute of Education (NIE). The first of its four chapters briefly summarizes the concept of career education, legislation related to it, OE and NIE project objectives, funding and the activities involved in reviewing the projects. Chapter 2 deals in depth with the accomplishments of projects sponsored by OE in terms of grade levels, community resource utilization, teacher responsiveness, project impact and quality of program evaluation. Chapter 3 discusses the status of the four NIE-administered career education projects (comprehensive school-based, experience-based, home/community-based and rural/residential. Emphasis should be placed on adequate teacher training, adequate measures of career education's success and well planned evaluations of projects.

Chapter 4 gives the following conclusions:

1. There is a need for knowing costs and effects before a program can be thought of as implementable.

2. There is a need for teacher cooperation to implement career education procedures or materals.

3. OE projects have provided inconclusive evidence regarding program impacts due to lack of adequate program planning and difficulties with test instruments and other evaluation procedures. NIE has shown a favorable impact of career education programs, subject to limitations of measurement.

The report recommends that:

1. Problems should be analyzed at the junior and senior high level regarding implementation of career education.

2. The projects should emphasize teacher training.

3. There should be increased efforts to include career education in teacher training at the college level.

4. Efforts to develop appropriate measures of the impact of career education should be increased.

5. Evaluation of career education projects should be improved particularly regarding: (a) measurable career education program goals and objectives which are consistent with the overall program, and (b) requiring projects to adequately plan for evaluation (e.g., collection of baseline data on student performance, program costs, etc.).

Giacquinta, J. The process of organizational change in schools. In F. Kerlinger (Ed.), Review of Research in Education (Vol.1) Washington, D.C.: American Educational Research Assoc., 1973.

After an extensive review of the literature on the process of educational change, Giacquinta concludes that the literature is atheoretical (i.e., does not develop and test theories to describe how organizations change or why they vary in degree of change.) There is a lack of methodological and statistical validation although the literature does provide the basis for two tentative propositions about organizational change. The tentative propositions are discussed by Giacquinta. "The first proposition is that the extent of change in any school's organization and the speed with which it occurs depends upon multiple factors; the nature of the innovation introduced, the tactics used to introduce it, the characteristics of the individual school members who must carry it out, and the properties of the school structure in which it is introduced. The second proposition is that an attempt to change a school organizationally, when successful, proceeds in three basic stages: initiation of the innovation, implementation and incorporation as a stable part of the organizational structure" (p. 79).

In the literature Giacquinta finds that organizational change only comes into existence when the behavior of its members change due to internally- or externally conscious efforts. Organizational change as a process is indicated and occurs in one of two fundamental ways: (1) discarding or replacing members, or (2) retaining original members and altering their behavior/attitudes. Retention of original members is the rule with educational institutions.

Giacquinta points out that based on conceptual analyses, the organizational nature of the institution affects the influence and speed with which schools change (i.e., adopt innovations). Giacquinta stresses that the cost and nature of the innovation affects whether the institutional organization makes a difference.

In the literature, Giacquinta notes two broad strategies described as sure to bring about change. The first strategy stresses that knowledge and understanding maintenance and "organizational change in the schools is a function of the extent to which the personnel gain awareness and understanding of innovations" (p. 184). This "show and tell" strategy requires ancillary activities -- the creation of new organizational forms for schools and the procedures necessary for dissemination or diffusion. The second strategy emphasizes commitment on the part of the school personnel to make changes and expecially overcome initial resistence to change or instill a sense of commitment where neutral affect exists. Tactics to obtain commitment include group problem solving, intra-organizational input and feedback, sensitivity training and T-group experiences.

Regardless of these two strategies, the literature suggests one principle in implementing educational change. The principle is "participation of subordinates - the rank and file membership- with their superiors in organizational decision making (p. 185) Yet, few articles "report the effectiveness of introducing change using strategies of participation as compared to introducing change from the top by superordinates, without participation by subordinates" (p. 185). Furthermore, the definitions of participation are diverse and unclear; and the few studies conducted on this are subject to methodological limitations. Therefore, it is unclear as to how participation affects innovation.

The personal characteristics of members is another set of factors that appears to have important effects on the process of change in schools... These personal characteristics probably reflect understanding of innovations, ability to exhibit the attitudes, values and behavior required, and willingness to make the necessary effort (p. 189). Reviewed studies suggest members' initial resistence affect the process of organizational change although concise operational definitions of resistance and the causes are not given. Also, "though program proposals identify the need for retraining personnel, they fail to acknowledge the degree of resocialization required for adequate performance of many innovations or the complexities and difficulties of the steps necessary in resocialization" (p. 194). As described by Seiber, special characteristics of the school is the last factor which can affect implementation of change. These include outside policies/practices from the social environment which affect the school, the characteristics of its staff (self-image, values), diffuseness of educational goals and the need for coordination and control of the (students) clients and employees of the system. "The low interdependence of teachers in their daily jobs, the low role differentiation among teachers, especially at the elementary school level and their role invisibility (the extent to which teachers are not closely supervised or observed by each other) have been noted as factors possibly related to change" (p. 196). With little evidence, some writers argue that the rate of program change will increase under the following conditions: greater complexity (number of occupational specialties and degree of professionalism); lesser centralization (degree of power in the hands of few); lesser formalization (extent of job codification and rule enforcement); less stratification (how much the rewards, especially money and prestige, of the top jobs exceed those at the bottom); lower emphasis on volume production (quantity vs. quality of production services); lower emphasis or efficiency (how much cost reduction or conservation of resources is enforced); and greater job satisfaction (morale of job occupants) of members. Furthermore, many of the conditions also permit opposing predictions on logical grounds.

Giacquinta points out that stages of organizational change (initiation, implementation and incorporation) are logical and cannot occur in the reverse although successful initiation

does not necessarily lead to successful implementation and successful initiation and implementation do not necessarily lead to successful incorporation. He cites three examples where there was no successful incorporation and suggests that the process of educational change is shown in diffusion, adoption implementation and incorporation is different at each of these points.

Although Giacquinta does not provide a theoretical framework for studying organizational change, he provides several postulates from a synthesis of basic themes in the literature. These are listed below.

"1. Organizational change when successfully completed proceeds in three distinct stages: initiation, implementation and incorporation...

2. These stages are influenced by attributes of the innovation that are introduced, the manner of their introduction characteristics of the school personnel who must make the change and structural properties of the school setting.

3. These factors do not influence initiation completely in the same way they influence implementation or incorporation.

4. A school setting's vulnerability may make initiation of innovations desired by the community inevitable. Their incorporation may never occur, if community interests turn to the introduction of new innovations before older ones are routinized" (p. 200).

Important questions to ask are whether specific conditions related to each of the four factors are more relevant to one stage than to another or more important to one stage than to another. Giacquinta suggests that future research/study include:

1. continuing theory-building.

2. Conducting systematic investigations (i.e., focusing on stages of change), large scale studies and multivariate analysis.

3. Developing greater precision in the definition and measurement of variables (e.g., concepts of resistence to innovate and participation in implementing innovation).

Glick, O. Evaluating innovative programs: paper prepared for distribution in conjunction with the 1976 AERA symposium presentation: internal evaluation in the experimental schools projects. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, April 1976.

The Franklin Pierce School District, a semi-rural, semi-urban district located south of Tacoma, Washington, was one of the Experimental School Projects (ESP) initially funded by the National Institute of Education. The five-year Franklin Pierce ESP attempted to provide an optimal learning environment for each student, with special emphasis placed upon transient, gifted and high risk students. A variety of educational system and curriculum models (of which two were career education and dissemination) were implemented. The ESP evaluation plan identified three major goals:

"1. To provide the superintendent and the school board with accurate information on the progress and effectiveness of the project's programs;

2. To set up and operate a program monitoring process that provides teaching staff and district administrators with information needed in decision-making; and

3. To accumulate and periodically report to federal sources appropriate date related to the progress of the program in fulfilling its objectives."

Two levels of measures of impact (formative, summative) were collected: district-wide and program-specific. Data were collected during the first 30 months at both the district-wide and program level. The district-wide measures of criteria included: achievement tests (every year), every other year aptitude test; checklist procedures for tracking the district's progress in implementing programmatic objectives, assessment of staff attitudes, perceptions and concerns about program implementation; budget evaluation system with a cost-effectiveness model; system for monitoring individual students' progress in specific curricula; use of criterion-referenced diagnostic student placement instruments; student affective assessment instruments (to assess attitudes towards school and towards specific subject; student self-concept of ability questionnaire); provision of "adult function" standards on all ESP programs; and community attitudes survey (towards ESP). Data for cost effectiveness included number of hours spent by each teacher in each course, number of students per course, salary per personnel and equipment costs related with each course.

The program-specific criteria measures included evaluations of the following during each semester of the 1972-1973 academic year: curriculum, staff attitudes towards program, student level of completion of course objectives, behavioral observations; use of checklists and teacher interviews to determine implemented program objectives; student attitudes (each semester) towards school; use of questionnaires to assess percent of time teachers spent using each of three teaching modes; review of school records and interviews with students who are "high risk" (high risk student was never defined) in order to determine

whether student is exposed to special instructional activities/ programs; review of school records to determine extent of school building use on other than regular school days, evaluation of teacher workshops to determine extent of teacher training, examination of school records and interviews with work experience counselors to determine number of students participating in work experience programs; examination of records and interviews with teachers to determine teacher/student ratios; assessment of community reactions to ESP using a questionnaire; student attitudes towards various aspects of the Occupational Versatility program, assumption of responsibility and information utilization as assessed with a questionnaire.

Problems with the evaluation included: lack of differentation between level I (formative) and level II (summative) evaluation, an inability to generate useful reports from all the data collected and at the needed time, poorly defined evaluation questions and lack of relevant data.

Data analyses were done by means of analysis of covariance and correlation of individual children's pre-program to post-program (after 1 year) data. Regression analyses were also used to predict an average grade level standardized score on each measure at each grade level per school to validate use of criterion-referenced achievement tests and to remove effect of pre-program scores in a pre-post evaluation design. The unit of measurement for the cost effectiveness analysis was the class defined as the "instructional group which is some number of students and instructional staff that come together at a specified time in a specified place and engage in some kind of identifiable instructional activity" (p. 29).

Goodlad, J. I. The dynamics of educational change: toward responsive schools. New York: McGraw-Hill Book Company, 1975.

Goodlad proposes that under certain conditions the single school, not the entire school system or the individual classroom teacher should be looked at as the unit of analysis and agent of implemented educational innovation. His hypothesis was developed after a series of experiences and studies extending over more than a decade, testing of this principle in a consortium of 18 schools, and some reflections on the dynamics of the change process in and among schools and on the complex collaboration between researchers and practitioners. The hypothesis originally emerged from observations pertaining to the propensity for change efforts to come from outside to focus on teachers or on groups of teachers or on the school system as a whole, and the neglect schools as total entities... The school has a distinctive culture... (which is) ...poorly understood by change agents coming from different milieu (pps. 171-172). Goodlad presents some postulates pertaining to school improvement:

1. "The optimal unit for educational change is the single school with the pupils, teachers, principal -- those who live there every day -- as primary participants... Although schools may have the same schedule, pupil-teacher ratio, books and materials -- they may have different "personalities" (p. 175).

2. "Schools change over the years in appearance, internal organization, the curriculum, etc; and ...under certain conditions a school can change itself to be more satisfying" to its members. Change agents "instead of trying to insert something into the school's culture, first should be trying to help that culture develop an awareness of and a responsiveness to itself" (p.177). Most schools do not have faculty and subfaculty organized meetings which encourage dialogue, group discussion-making and action-planning.

3. There should also be some "continuing agency concern about the internal decision-making processes of the school and capability of providing specific assistance, when called upon, in developing processes of group dynamics, securing relevant references on topics discussed by school staffs, securing evaluations and the like" (p. 177).

4. Teachers should be given the opportunity to interact with other teachers, formally or informally to discuss and learn from each other, how to do a better job and how to teach in a more satisfying and interesting way.

5. Innovations should be implemented with the purpose of longevity in mind which necessarily implies not implementing any and every other innovation which comes along. Planned longetivity may be implemented through formalized and written agreement with school principals and superintendents.

6. "If change within the school is going to be significant and therefore, probably to deviate from the established expectations and procedures of the system, the school will require a supportive peer reference group" (p. 180). "The opportunity to interact with peers from schools in other districts clearly challenged old ideas (about what was a traditional rule vs. habit) and the confortable cop-out that this is the way it has been" (p. 181).

7. "Although the growth of the new social system of (alternative) schools reduces the vulnerability of each member school to attack from within its own ecosystem, the construction of communication networks with these larger systems is essential" (p. 181). Staff at the alternative schools were encouraged to make speeches about the innovations at neighborhood districts not within their own district. "Schools some distance away are more likely than one's neighbor to be interested initially" (p. 182).

8. "To respond to stimulation for change, even in relatively modest ways, is to require new knowledge, new skills, new patterns of behavior" (p. 182). Principals' needs were taken care of through monthly meetings and the security of a "hot line" allowing for them to be comfortable with one another so they could acquire new knowledge. Principals are more accustomed to being "professionally alone or insecure" (p. 183).

The strategies suggested by Goodlad call for decentralization of resources and decision-making power from the office of the superintendent to the individual school principal. Another component of a change strategy could be an intermediate agency composed of alternative schools as members. This intermediate, inter-school agency could interject between the schools and the formal system of schools (i.e., school district). The RD&D* model or the League (i.e.. intermediate agency model) is insufficient to implement change since both are needed. The League model looks at what happens in the school which serves for an RD&D model to other schools.

Gooler, D.D., & Ely, D. The impact of curriculum change. Educational Technology, 1972, 12 (10), 39-42.

This is an impressionistic case-study description about the effects of organization of a university department which attempted to engage in curricula change. While there are many curriculum development efforts in higher education, there is almost no documentation of the process. The article stresses three elments of the organization that appear to have impact for curriculum change. These include:(1) the roles of the various people; (2) the goals of the department; and (3) operational procedures.

In this particular university, students and faculty had more equal say than usual except under specific situations where teachers made the final decisions; goals were not well defined or understood the same by all professors and students; and operational procedures required both faculty and student involvement. Curriculum and policy decisions were drawn up by committees. Recommendations of the committee must be decided upon at a community meeting.

The type and degree of participation described by these authors suggests a debilitative aspect of participation "because the role definitions were fluid everyone had this power, but no one had the power. This paradox... has led to an inability to made decisions about what will be" (p.40). Furthermore, there was an implicit resistance by some of the students to accept a more egalitarian approach to teachers due to the "many years students had spent in formal educational institutions" (p. 40). The authors stated that "curriculum development is pretty much an idiosyncratic enterprise heavily dependent

*RD&D = research, development and diffusion

on the needs of and predispositions of the strong" (p. 42), (or as in this case, temporary consensus about goals).

Although the authors proposed a three-stage approach to implementation of curriculum changes , the department never progressed past the first stage because of the organization of the department. The proposed stages were: (1) definitions of what needed changing and goal-setting, (2) implementation of change, and (3) formal or informal evaluation of the change.

Gooler, D.D. Criteria for Evaluating the Success of non-traditional postsecondary education programs. Journal of Higher Education, 1977, 48(1), 78-95.

In this paper, Gooler describes seven criteria for determining the success of innovation (formative and summative criteria). Although he concentrates on a postsecondary program innovation, the criteria are generalizable to other innovations. These criteria include: (1) access, (2) relevancy to needs and expectations, (3) quality of program offerings, (4) learner outcomes, (5) cost effectiveness, (6) impact and (7) generation of knowledge.

Access involves the issue of rights vs. privileges, numbers of and types of persons the program can potentially serve, and how it can serve. The second criterion might be stated as: to what extent does the program provide opportunities and services that are regarded to be of priority to communities in general, or to specific individuals...the same program may be simultaneously judged both successful and unsuccessful, depending on who is making the judgment" (p. 81). Quality of program offerings may be thought of in terms of product or process (technical/production quality; production and pedagogical quality; logic and correctness; scope and sequence; assumptions about the learner and the learning process; ease of delivery). There are suggested models, techniques and procedures for evaluating instructional materials or products which can guide evaluations (Eash, M.J., 1974; Eraut, M. et al., 1974; Scriven, M., 1964; Southwest Educational Development Laboratory, 1969; Yelon, S.T., 1974).

The question of learner outcomes might be stated as "Who learns or experiences what, and with what consequences" (p. 84). This involves a distinction between results which are experiental and those which are final outcomes or products. Learner outcomes may be described minutely and behaviorally or globally. "The assessment of learner outcomes has been the historical focus of evaluation efforts" (p. 85) (AERA, 1969; Lessinger, L., & Tyler, R., 1974; Stake, R., 1967). It is important to know which program participants did or did not achieve what was intended; and, which and why some participants dropped out. A related question has to do with what else was learned by the

participants which was not specifically intended. A third issue relates to participants' attutudes/feelings /involvement Finally, immediate and long-term effects on the learner must be distinguished.

"The fourth criteria may be stated as: Is the program cost effective? To some, the criterion implies the comparison of one program in relation to other programs. Other people take this criterion to mean that the cost incurred in the development and operation of the program can be justified in terms of the program's outcomes" (p. 86). This issue is central in the minds of many people when judging program success (Doughty, P., & Albert, B., 1974; English, J., 1968; Laidlaw, B., & Layard, R., 1974; OECD, 1974; Palola, E., 1974). In many instances, only the cost factors is examined with the effectiveness factor assumed to be constant. Furthermore, a problem arises in cost analysis when arriving at decisions about what is to be included as a part of a program. When this criterion is used, it must be used very cautiously. Regarding effectiveness, there is always the confusion as to the differences between effectiveness and efficiency or effectiveness and benefit. This is particularly confusing when programs' effectiveness is compared when they differ in goals (Cronback, L.J., 1963; Glass, G.V., undated; Scriven, M., 1974). Another difficulty with the criterion of cost effectiveness is the matching of cost to effectiveness. "Since cost analysis schemes vary and since effectiveness measures are not consistent, the relationship of cost to effectiveness... is tenuous" (p. 87).

"The success of any given program might be judged in terms of the impact that program has on institutions, programs or individuals" (p. 87). One might ask to what extent the program has influenced the goals, policies and directions of other programs, institutions, agencies or individuals?? (Example, adoption/adaption by other organizations, institutionalization in the administrating organization.) "If an open-learning program causes reexamination of instructional strategies in existing institutions, then the open learning program would, according to this criterion, be judged successful. Such influence may not be looked for over a longer time perspective. A third indicator of institutional impact might be an inclination among institutions to move toward more consortial/cooperative program efforts... to achieve economies of scale" (p. 88). "Finally, institutional impact may be assessed in terms of the internal reward structures for faculty and administrators" (p. 89) (released time, financial resources given to work on or with innovative practices/instructional methods).

"Medsken, et al. (1975) discusses incentives to attract regular faculty to participate in nontraditional study programs. Their study confirms that special incentives and reward mechanisms are required to ensure participation" (p. 89).

The last question to be asked of innovations might be stated "to what extent does the program contribute knowledge useful

to a better understanding of the problems, issues and practices of the field" (p. 91). Knowledge may be generated in at least four ways: (1) "according to the adequacy of the recordings of judgments about that program: (documentation of how and why things were done and results obtained); (2) systematic variation and subsequent analysis with a strong commitment to research and evaluation; (3) long-term indicator study with continuous monitoring being a necessary component; and (4) development of articulate hypotheses which are then tested via one of the three prior-mentioned strategies. "A part of the success of a ...program may therefore rest on its capacity to generate intelligent hypotheses about itself and its impacts" (p. 92).

Gross, N., Giacquinta, J. B., & Bernstein, M. Implementing organizational innovations (a sociological analysis of planned educational change). New York: Basic Books, Inc., 1971.

This book reports the findings that emerged from an intensive study of the fate of a promising educational innovation that was introduced into an elementary school. The study's primary objectives was to isolate factors that inhibit and facilitate the implementation phase of the process of planned organizational change... the inquiry focused on a case study of a school that required eight months of field work and related data collection activities.

The book is divided into eight chapters and has four appendices. It includes a review and critique of the literature on planned organizational change, a methods section, a description of the school climate and degree of implementation of the innovation. The last chapters discuss barriers to implementation encountered by teachers; possible reasons for this and finally, conclusions and implications.

Major conclusions draw from their initial literature review were: (1) a need for investigation of the implementation phase of the educational change process; (2) consideration of obstacles to implementation of innovations when members are not initially resistant to change; (3) importance of management; and (4) possibility that members who are not initially resistant to an organizational change may later develop a negative orientation to it.

Chapter 3 spells out the research methods used in conducting this 1966 study. Data were collected three times --(1) just before the introduction of the innovation, (2) when just implemented, and (3) "end" of the implementation period -- (the latter was determined subjectively). Specific types of data collected were staff attitudes, performance and social relationships. The most unobstrusive and natural methods of study possible were used. Observations of group and individual

performance, formal and informal interviews, teacher questionnaires and public and private documents provided data for the study. The elementary school chosen to participate in this study was in New England, small (i.e., eight classrooms), in a ghetto, and characterized by low academic productivity. Important issues also discussed in chapter two were securing formal administrative permission for the study, gaining entry into the school, defining the role of the researchers and establishing rapport with the school staff. These issues are particularly important in light of the summative and unobstrusive nature of the study.

Chapter 4 describes the climate for educational change at the school prior to implementation of the innovation. The body of evidence revealed a very positive external and internal climate for change (e.g., strong interest in obtaining improvements in the school's program expressed by parents and higher administrative officials; staff supportive of innovation idea; teachers were given pay raises to compensate for additional time and energy to be asked of them; teachers were using traditional methods to teach).

Chapter 5 discusses the degree of implementation of the innovation which in effect required teachers to change their behavior (i.e., perform new tasks and behave differently in the classroom). Specifically examined were the quantity of time teachers devoted to trying to implement their new role, and the quality of their performance during this period. "The measurement of the quantity of innovative effort required assessing the proportion of classroom time the teacher behavior conformed to the traditional teaching pattern while the measurement of the quality of their innovative effort necessitated assessing the extent to which non-traditional teaching behavior conformed to a set of behavioral indices" (p. 91) indicative of the alternative role stressed for teachers in the program. All 10 teachers in the school were observed throughout a number of weeks and in random and unannounced order. Innovative effort was arbitrarily rated as very high if there was 76-100% of the quantity or quality of the implementation effort while 51-75% was moderately high; 26-50% was moderately low and 0-25% was very low. Degree of implementation in May was minimal.

Barriers to the implementation of the innovation discussed in Chapter 6 were: "(1) the teachers' lack of clarity about the innovation; (2) their lack of the kinds of skills and knowledge needed to conform to a new model; (3) unavailability of required instructional materials; (4) incompatibility of organizational arrangements with the innovation; and (5) lack of staff motivation" (p. 122). These barriers to implementation were revealed through formal interviews with teachers at the three periods of data collection. The evidence gathered, via teacher evaluation forms, of the project director and his associated staff suggested that "the most plausible explanation for the conditions that blocked the implementation of the innovation could be located in two fundamental deficiencies in

the strategy used by the director. These were: ..."(1) he failed to identify and bring into the open the various types of difficulties teachers were likely to encounter in their implementation attempts; and (2) he failed to establish and use feedback mechanisms to uncover the barriers that arose during the period of attempted implementation" (p. 194).

Implications of the study included the following: "Failure to implement the innovation was attributable to a number of obstacles that the teachers encountered when they attempted to carry it out" (p. 196). "Resistance can develop among organizational members who are positively oriented to change after the innovation has been introduced" (p.198). Management should provide a clear picture of teachers' new role requirements, make organizational arrangements compatible with the innovation and provide teachers with needed retraining to help them cope with difficulties in implementing the innovations.

Guba, E.G. Development, diffusion, and evaluation. In T. K. Eidell J. M. Kitchel (Eds.), knowledge production and utilization in educational administration. Columbus, Ohio: University Council for Educational Administration, 1968.

The activities in which a diffusion agent, or diffuser, engages are those that are involved in bringing a proposed problem solution or invention to the attention of someone who may actually use it in practice, and those involved in giving that practitioner the opportunity to assess the operating qualities of the invention. There are six ways in which a diffuser may operate: tell, show, help, involve, train, and intervene.

Telling involves the written or spoken word; showing involves a planned or casual observation, or actual participation, such as demonstrations, simulations, or looking at materials or displays; helping involves consultation service, trouble-shooting, etc.; involving takes the form of inclusion through assisting with the development, testing, or packaging of an innovation; training involves familiarizing practitioners with the pictures of the proposed innovation, or of assisting them to increase their skills and competencies or to alter their attitudes; intervening consists of direct involvement of the diffuser such as mandating certain actions (adopting a statewide curriculum).

The purpose of adoption is to install an intervention within a particularly local setting. Adoption involves three major steps, the second of which is divided into several sub-steps:

try-test	
Install	Modify Train
Institutionalize	Equip and house Organize

Guba, E.G. A diffusion mechanism for the Center for Vocational and Technical Education. In H. M. Brickell and E.G. Guba (Eds.), Conceptual strategies for utilizing research and development products in education. (Occasional Paper No. 2) Columbus, Ohio: Ohio State University Center for Vocational and Technical Education, 1971.

This paper presents diffusion strategies aimed at state departments of vocational technical education, college departments of vocational-technical education and other high-level educational administrators and decision-makers. Guba reviews Havelock's four models of diffusion (RD&D, Social Intervention, Problem Solver and Linkage Models) described in Planning for innovation through dissemination and utilization of knowledge (1971) discussing their characteristics, weaknesses and strong points, major advocates (i.e., researchers, theorists) and finally decides to go with the RD&D model from which dissemination strategies will be developed. This was done because the Center for Vocational and Technical Education (CVTE's) "approach appears to be based on the RD&D model... and ...[he] can hardly require CVTE to change its propositional posture simply for the sake of expenditing the diffusion task" (p. 4).

Selection of strategies for diffusion should be developed after consideration of the following elements (on which Brickell and Guba agree): images of the practitioner held by the diffuser (e.g., interest in not changing interest in power, etc.), characteristics of the adoption setting (e.g., leadership, power distribution, and characteristics of the innovation (e.g., magnitude, cost, completeness, etc.). Guba also suggests the nature of the innovation and its ultimate goal (better trained, more knowledgeable, better adjusted children, etc.) is important to consider. Generally speaking, tactics for dissemination include: telling, showing, helping, involving, training and intervening.

Guba states: "I was struck by the fact that the diffusion problem in education generally appears to have been badly handled. Efforts at educational diffusion, as we are all well aware, have not been as successful as we hoped. I believe this lack of success is chiefly due to the fact that the strength of diffusion interventions has rarely been equal to the strength of the myriad obstacles to change. All too much of our diffusion efforts have taken the form of a simplistic response based on some research datum" (p. 10) (e.g., simplistic use of newsletters). Given that CVTE has an interested audience (State Educational Agencies, University V-T departments, RCU's) via the network of past federal programs in the V-T area, their dissemination strategies must be of a special nature.

Guba proposes use of a massive organizational model of diffusion adopted from Harbans S. Bhola called the "Configurational Theory of Change." Basically, this model describes the

hiearchical roles and motivations of persons who subscribe to ideas, are committed to an ideology, and implement and institutionalize changes. Guba's adoption of the theory involves five organizational units. The first unit is a distributor relations division to: identify potential distributors and solicit them to join in the distribution network; negotiate franchise and provide operational assistance to franchise. The second organizational unit is a warranty division which will: determine the extent to which CVTE products can be warranted; determine conditions of warranties and specify the nature of the warrantee; determine the role of the dealer in honoring warranties; and respond to warranty problems beyond the capability of the local dealer. A training division must: devise requisite training for dealer personnel; offer training courses, workshops, etc.; followup on "graduates" in their field assignments; and engage in continuous retraining of dealer staff. The fourth division is a Promotions Division which should: conduct campaigns devising to create awareness and interest in CVTE products and providing promotional interature. The final, Market Studies Division, should: conduct, context and needs assessments and consumer sampling; and, develop future studies.

Guba, E.G., & Clark D. K. The configurational perspective: a challenge to the systems view of educational knowledge production and tilization. Paper presented at the Fourth Annual Meeting of Cedar, Washington, D.C., November 1974.

This paper posits that it is necessary to evoke the development of an adequate federal KPU (Knowledge Production and Utilization) program in education which will command broad-based support within and outside the profession and that this demands a reformulation of the conceptual structure on which the program is built. Section 1 offers a historical analysis of federal involvement in educational KPU and offers some generalizations regarding the goals and the means for achieving them that have characterized federal programs and policies. The conceptual structures that have emerged during this period are identified and criteria that can be employed in assessing such structures are proposed. The second section examines the systems view, which is the conceptual structure currently dominating educational KPU policy. How this view emerged and how it is reflected in current KPU policy are discussed. Also, this concept is assessed in terms of the criteria listed, and its shortcomings in relation to realism and balance are noted. Section 3 purposes an alternative structure, the configurational view. This view is contrasted with the systems view on the dimensions of completeness, realism and balance. It is concluded that the configurational model would result in more productive relationships between federal funding agencies and KPU units in the field and among the latter. Section 4 provides illustrations showing the effect the configurational view might have on educational KPU policies and program.

Hamilton, H.A., & Mitchell, A. M. Final technical report: identification of evaluated exemplary activities in career education. Palo Alto, California: American Institutes for Research, 1978.

This project examined the effectiveness of career education by identifying some of the best of the current career education programs and practices which were referred to in PL 93-380 and which have been objectively evaluated. Evaluation reports were screened through a set of criteria related to quality and effectiveness. Based on these criteria, the projects were selected as being the most effective.

Criteria were established to answer the following:

EFFECTIVENESS - Does the activity do what it claims to be able to do? As the learning outcomes directly attributable to the activity and not to some other factor:

IMPORTANCE - Are the nature and magnitude of the outcomes educationally significant?

REPLICABILITY - Is the activity sufficiently well defined and objectively described that it could be faithfully replicated?

GENERALIZABILITY - Is the evidence of effectiveness likely to be generalizable to other circumstances?

PRACTICALITY - Do the required resources and procedures made the activity a reasonable, practical educational alternative?

Specific criteria for selecting evaluated, exemplary career education activities were:

Activity Effectiveness

TREATMENT

OBJECTIVES. Objectives of the activity are relevant to the general goals of career education.

Objectives are either explicitly stated or clearly implied.

PROCEDURES. Procedures represent an implementation of the activity objectives.

Procedures are consistently employed by staff responsible for instructional diagnostic activities and services.

Procedures or activity components directed at career education objectives are not confounded with non-activity components.

Procedures provide for ascertaining the entry-skill levels of participants.

	Procedures provide for frequent assessment of student progress.
	Adequate details of diagnostic and instructional procedures are available to validate descriptions of activity methodology.
EVALUATION	
FOCUS	Evaluation data are available on those activity objectives that are relevant to improvement of career education skills.
AVAILABILITY	Information required for validation of activity success can be obtained.
	Available information is adequate to validate activity success.
EVALUATION SAMPLE	Critical descriptive and statistical data related to characterizing the activity group are provided.
	In instances where the evaluation group was only a portion of the activity group, procedures for selecting the group are specified.
COMPARISON GROUP, IF ANY	Critical descriptive and statistical data related to characterizing the comparison group are provided.
	Procedures for selecting the group are specified.
	The group is reasonably comparable to the activity participants upon which the evaluation is based.
	If a comparison is being made between activity and non-activity persons, important differences between these groups in kinds and amounts of instructional methods, activities, and services are specified.
CHARACTERISTICS OF THE MEASURE USED	Measures are appropriate to evaluate objectives of the activity.
	Measures are appropriate for activity participants.
	Measures are either standardized tests or are specially constructed tests with reasonable and verifiable validity and reliability data.
SCHEDULE	The data collection schedule for measures and tests administered to activity and comparison or baseline groups identifies exactly when data collection occurred and identifies measures and tests as pre-, during-, and post-activity, or followup.

DATA PROCESSING	Classification and grouping of raw data for processing is appropriate for methods of statistical analysis used.
DESIGN	The evaluation design provides for an adequately controlled assessment of activity effects in terms of basic objectives of the activity.
STATISTICS	The statistics and statistical analyses used implement the design of the evaluation.
EDUCATIONAL SIGNIFICANCE	Educational significance is demonstrated if the performance of the activity group is greater with respect to activity objectives than would be expected for appropriate reference groups (e.g., using typical instructional materials and procedures with a group comparable to activity participants).
CONSISTENCY OF RESULTS	The evaluation data identified either give promise of replication or are verified by data from adequate replication(s).

Activity Operation

STAFF	A role definition is available for each category of activity staff and contains all details required for replication.
	The skills and special training required for the activity staff do not require an unreasonable training period.
PARENT/COMMUNITY INVOLVEMENT	If this is a key component of the career education activity, procedures and guidelines for implementing parent/community involvement contains all details required for replication.
CONTEXT	Significant descriptive details about the activity setting that should be taken into account in replicating the activity at another site can be documented.
COST	(The following cost data are to be reported on a per-pupil and total activity basis.)
	Direct and indirect costs for operation of the activity can be identified.
	Fixed and variable costs of the activity can be identified.
INNOVATIVENESS	The activity can justifiably be said to use features recognized as new, creative, and unusual, or to use traditional practices that have produced exceptional results.
EXPORTABILITY	The various activities, services, organizational details, and key procedural information are amendable for the purpose of wide-scale dissemination.
MATERIALS	The necessary instructional materials can readily be made available in sufficient quantities to permit wide-scale dissemination and replication.

Procedures and guidelines for the implementation and use of activity materials are specified and indicate the scope and sequence of learning tasks.

EQUIPMENT — Equipment required to operate the activity can be made available in sufficient quantities to make wide-scale dissemination and implementation feasible.

The cost of such equipment can reasonably be assumed to be within reach of school districts in the United States.

ACTIVITIES AND SERVICES — The activities and services required for carrying out the exemplary practice or activity can be readily supplied to the extent necessary for wide-scale replication of the activity.

COMPLEXITY — The complexity of all media required in the activity is not a limiting factor for its replication elsewhere.

Harmes, H.M. Improvement in education: criteria for change. Educational Technology, 1970, 10, 46-50.

This article discusses criteria for judging the effectiveness of educational change programs. Cost-effectiveness ratios cannot be addressed until the appropriate criteria are identified. Learner outcomes is one criterion of success but there are others. Harmes discusses the following five categories of educational improvements: (1) objectives more aligned with goals, (2) increased efficiency, (3) reduced undesirable side effects, (4) increased reliability, and (5) more objectives accomplished.

Objectives More Alighed with Goals - A program will be improved when the day-to-day operational objectives are changed so that their contribution to the overall goals of the program is increased. This means that instructional objectives should be relevant to expected outcomes. It is important that specific short-range objectives lead to long range goals.

Increased Efficiency - Other things being equal, an instructional or administrative procedure will be improved when a change in procedure results in the accomplishment of its objectives with less expenditures of effort. This means that the amount of learning is maximized in proportion to the effort expended.

Reduction of Undesirable Side Effects - Other things being equal, an instructional or administrative procedure will be improved when a change of procedure results in the generation of fewer undesirable side effects.

Increased Reliability - Other things being equal, a program will be improved when the reliability of the program is increased in the context of use for which it was intended. Reliability is a term which is used to express the consistency with which a program achieves its objectives.

More Objectives Accomplished - if a program can be designed to accomplish objectives that were not obtainable at all with previous programs, then that program is an improvement.

Finally, the author suggests that every school system begin to collect data on all operating programs relative to the five categories of educational improvement to assist in decision-making.

Havelock, R.G. Dissemination and translation roles. In T. L. Eidell & J.M. Kitchel (Eds.), Knowledge production and utilization in educational administration. Eugene, Oregon: University of Oregon Press, 1968.

Havelock presents a theoretical discussion of linking roles needed to retrieve basic or applied knowledge to derive practical implications from basic or applied knowledge and to distribute knowledge to people who neet it and can use it. He indicates what types of linking roles are most effective for what linking tasks, what characteristics a skills need to be considered in recruiting and training linkers and to make knowledge linkage a permanent feature of our national educational system.

He includes a discussion of two major problems in linking roles, "overload" and "marginality," and presents a prescription to overcome these problems in education. The linker's activities can be grouped into three kinds of processes: getting information (input), processing information (thru-put) and distributing information to others (output). In each of these processes, the linker may have too much to do (or overload). He may have too much information to handle, too many people to get it from, too many steps to put it through, and too many people to give it to. (See Table 3 for a presentation of problems related to overload.)

TABLE 3*

OVERLOAD PROBLEMS FOR THE LINKER

	NUMBER	COMPLEXITY	DIFFICULTY
Input	Information has to be assembled from too many sources.	Sources are highly technical, requiring high degrees of scientific competence.	Information is inaccessible.
Thru-put	Too many pieces of information need to be assembled.	Information has to be taken from a highly technical form to a highly simplified and packaged form.	The forms into which the knowledge must be assembled require a great expenditure of effort (e.g., construction of a complete training course).
Output	Information has to be distributed to too many people.	Information which is complex and difficult to understand must be communicated to the user.	Users are very hard to reach and to influence.

*page 108.

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If Table 3 shows us anything, it shows us the magnitude of the job of the linker. It highlights the need for a drastic division of labor and a clear definition of sub-function, which can only be accomplished through institutionalization. It also highlights the need for the linker to focus his activiites in projects, time-limited and objective-limited sequence.

The second problem theme which seems to be present whenever we discuss knowledge linking roles is "marginality.: The linker is necessarily and by definition an in-betweener. He can attain partial membership in either the practice or research world by overlapping membership while not achieving the membership.

In order to minimize overload and marginality in education, four things are suggested by Havelock. These four strategies are listed: (1) building an institution which includes and supports the required roles (i.e., university or school system, perhaps federally-supported); (2) recruiting candidates to serve in these roles (e.g., paraprofessionals, women and creative teachers, not people with top-flight research backgrounds); (3) train recruits to fill these roles (e.g., train about: (a) knowledge dissemination and utilization process as a whole, (b) working with client system, (c) resource systems, and (d) role complementarity and coordination to implement dissemination); and (4) provision of tools/equipment. There are at least six types linking strategies employable with various clients such as use of: handbook of new practices, innovations and usable research knowledge or linking problems and solutions: guide to retrieval of information; instruments to measure success of dissemination and utilization effort; and, client self-diagnostic tools. What we need to do is to upgrade our store of knowledge in education through translating it, evaluating it, trying it out and re-evaluating it.

Havelock, R. G. Planning for innovation through dissemination and utilization of knowledge. Ann Arbor: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, 1973.

This book discusses the processes of innovation, dissemination, and knowledge utilization, and includes a literature review. Measurement criteria are not discussed.

Seven factors account for most dissemination and utilization:

1. Linkage - the number, variety, and mutuality of resource system-user system contacts, degree of rule-relatedness, and collaborative relationships.

2. Structure - the degree of systematic organization and coordination of the resource system, the user system, and the dissemination-utilization strategy.

3. Openness - favorable climate for change.

4. Capacity - the capability to retrieve and marshall diverse resources.

5. Reward - the frequency, immediacy, and amount of positive reinforcements.

6. Proximity - the nearness in time, place and context; familiarity, similarity, and recency.

7. Synergy - the number, variety, frequency, and presistence of forces that can be mobilized to produce a knowledge utilization effect.

Hearn, N. The adoption rate of Title III innovations after the end of federal funding. Educational Technology, 1970, 10(11), 43-45.

This article describes a study of 330 Operational Title III projects (i.e., PACE projects) funded in 1965-1966 with termination dates during 1968-1969. The purposes of the study were: "(1) to determine how many public school districts receiving ESEA Title III grants would be continuing the project following termination of federal funds, and (2) to determine which of several selected variables might be useful to predict successful adoption of educational innovations by local school systems" (p. 43). Adoption criteria included: (1) extent of local commitment to continue its program (i.e., discountinue, reduce, continue the same, or expand); and (2) extent of program activities (number of persons that had visited the program, number of similar programs which had been installed in schools as a result of viewing project activities).

In February 1969, a 39-item questionnaire with a project abstract attached was designed, field tested, and mailed to superintendent of all active projects. There was an 80% response rate. Program effectiveness (i.e., Title III program effectiveness) was determined by relating percent of continued projects (85%), total number of visitors, newly-started projects and produced instructional materials across projects to Title III program costs. This survey found effects of project characteristics, effects of social system variables and effects of superintendent characteristics on program adoption or continuation. Furthermore, there were differences between rural and urban projects.

Effects of project characteristics associated with adoption of the demonstration were: (1) greater size of the local fiscal contribution, (2) greater numbers of persons served, (3) smaller budgets for training/retraining of teachers, evaluation and dissemination, and (4) greater involvement by teachers and students in project formulation and operation. The discon-

tinuance of high-cost training projects is explained by the fact that projects which retrained teachers and staff were not likely to be continued after the training was completed. The discontinuation of projects with costly evaluation components may be explained by the possibility that the evaluation of projects was too technical or led to insignificant or inconclusive findings about the Title III project.

Effects of social system vairables on continuation included the following: (1) school districts with higher educational levels expanded and continued more projects; (2) communities with higher family incomes and a slightly greater percentage of continuations; (3) almost half of the discontinued projects were in communities that had hired all of their last three superintendents from inside the system; and (4) the greater the number of innovations tried in the past by the school district, the more likely the adoption of the project.

Younger superintendents with doctorate degrees and more years of experience as superintendents had significantly greater adoption rates. Superintendents born in rural areas who had moved more often and who attended more out-of-state meetings were also more successful. If the superintendent regarded himself as an "innovator," he had a greater continuation rate.

Urban projects had higher continuation rates, cost more per pupil, had significantly more projects with higher percentages in budget for training, less projects with higher budgets for training and more with higher evaluation budgets.

In view of these findings and others too numerous to mention, the following recommendations were made:

1. Based on the 85 percent adoption rate, three years is a reasonable period for a "temporary system" type demonstration project of an innovation.

2. Allowing local systems to design projects suited to their own needs in a statewide competitive situation is a wise policy and should be continued and encouraged in state administration and other federal programs.

3. The success of USOE personnel in predicting success of a project should be exploited, USOE should be encouraged to give more technical assistance to projects not rated as innovative in order to recoup the federal investment.

4. Since local commitment of funds during the life of the project is predictive of success, the states and USOE should consider requiring some financial commitment to the project during the second and/or third year of the project.

5. Since 77 percent of the projects reported creating instructional materials of possible value to others, the USOE should evaluate these materials and disseminate them appropriately.

6. Since rural projects were more likely to be discontinued, states should provide more technical assistance and perhaps a longer project period to rural applicants.

7. Since percentages of budgets for evaluation and dissemination were negatively associated with continuation, efforts should be made to train project directors in these areas.

Hopkins, J. E. Criteria acceptable to the educational developer. Paper presented at the Annual Meeting of the American Educational Researcher Association, San Francisco, April 1976.

This paper discusses the problem of selecting appropriate mimimum criteria for the review of educational programs and products that will not unduly hinder the creative freedom of educational developers. The author believes in the "free enterprize model" in evaluating programs or products. Criteria should be applied that "assure the harmlessness of the product on the potential user, but from that point on, there should be no further requirements and the market place should simply be allowed to work its will" (p. 4). The article reviews a list of criteria and factors/audiences for which the criteria are important graphically portrayed in a matrix form. More specifically, the categories of criteria (e.g., adoptability, intrinsic quality, desirability, effectiveness, impacts and efficiency) and multitudes of sub-criteria are described in terms of the factors/audiences which are concerned with each (e.g., target population, type of product/program, sponsors and their expectations, purpose of the developmental efforts and legislative mandates). The article also describes tne different decision-makers (i.e., product developer, product screener and consumer/user) involved.

The author concludes that the only criteria which should be applied to the assessment of any new educational product before its release are the criteria of "social balance and fairness in its intrinsic quality and "user effects" regarding its effectiveness. He also suggests that "Spinoffs" are an important criteria for model programs/products but not all programs and products.

House, E.R. A critique of change models in education. Educational Technology, 1971, 11, 35.

House states that there are several linear change models in education but possibly the best thought-through is the Clark-Guba model. According to Guba, "this model postulates at least four distinct functions necessary to educational change -- research, development, diffusion, and adoption. The role of the

researcher is to create knowledge, that of the developer to engineer a new invention based on that knowledge, that of the diffuser to spread the invention, and that of the adopter to adapt the invention to his own use" (p. 35). This appears to be the change model which underlies most U.S. Office of Education planning and programming.

In reality, the model does not hold up very well because it is based on the assumption that value consumers and accountability are operating from beginning to end. The researcher is more interested in creating new knowledge than implementing it. Demonstration centers are more concerned with public relations in their own district than in problems of would-be adopters. Demonstration directors see little advantage in working in other districts since their career patterns are in their own districts.

Often funds for adoption of new programs are subverted for other uses by administrators who feel little or no obligation to follow through on a proposed program. Only in districts where someone assumes a strong and relevant advocate role will a program survice.

The linear model assumes the pursuit of common goals by collectivities of people, but this does not happen. The lack of value consensus may explain why Rogers' model of an individual adopting an innovation may fit some data better than one based on collective adoption.

The Office of Education has neither the power nor the expertise to enforce accountability particularly when there are local or regional militant groups with political powers.

The actor may pursue goals and be accountable but in directions that lead away from institutionalization. "Without either consensus on goals or accountability, it is difficult to see how this general change model could work," according to House. But he adds, "value consensus and consumer-oriented accountability can sometimes be achieved, but in different ways" (p. 35).

House, E.R. (Ed.) School evaluation: the politics and process. Berkeley, California: McCutchan Publishing Company, 1973.

The primary purpose of this book of readings is to acquaint the practicing administrator, the decision-maker and the educational consumer with the world of evaluation. Much of the work in this book presents the accumulated experiences of the Center for Instructional Research and Curriculum Evaluation (CIRCE). The major topics in the book are: (1) the political nature of evaluation; (2) program administration and program evaluation as intimately related and involving negotiations between administrators and evaluators throughout the life of the program; and

(3) the relationship between decision-making and evaluation, (e.g., under favorable conditions, evaluation data account for 20% of an administrative decision).

At its simplest, evaluation is the process of applying a set of standards to a program, making judgments using the standards and justifying the standards and their application. But there are many standards and many ways to raise standards.

Part I of this five-part book includes reading on decision-making and evaluation and attempts to look at and define the roles of the administrator and the evaluator. For example, one reading stresses that "goals and objectives for the school are usually stated in general hazy terms in order to protect the system from the deep splits in the American value structure" (p. 7), while evaluations usually require clear goals and objectives to guide it. Suggested solutions to this dilemma are either to use a tight, measurable management plan or to have a clear separation of power among school staff and teachers. In any case, the administrator should know what he/she wants out of evaluation for it to be effective -- what he/she needs/wants to evaluate and what is intended to be done with the results. Likewise, evaluation can theoretically have a critical role in the operations of a school. For example, after surveying school needs, the results can be translated into meeting these needs.

On the other hand, evaluators' data are only one of many inputs which go into decision-making; it can be very influential if it results in decisions which reduce efforts or costs in program administration. There is no single criterion for cost effectiveness, however, which limits its utility in program evaluation.

Part II, "Politics as usual", illustrates the political nature of evaluation. Often it is used by the higher levels of government to shape the behavior of the lower. One emotional topic of political concern sketched in the book is the use of standardized test scores to evaluate educational program outputs. Much of the pressure for evaluation has come from the federal government trying to account for money. The U.S. Office of Education is mandated by Congress to evaluate programs. Ordinarily this requirement is passed on to the states. In turn the state departments of education put evaluation pressure on the local districts. States end up confusing monitoring of public funds with evaluation, or the examination of educational program effectiveness. After this happens, auditors try to evaluate and evaluators end up auditing. The actual evaluation reports are miserable. And no one at the federal, state or local level is happy. Furthermore, what most often happens to evaluations is that findings are often ignored or buried if they do not agree with the client's preconceptions. Particularly in social science and education, the client's "self-image and ideology" are foremost and more important than negative findings. In the last chapters of Part II, it is maintained that evaluation is political to the extent that information is a basis for changing power relationships.

Part III addresses the issue of teacher evaluation and evaluation as a strategy to improve or to reward/punish (i.e., formative and summative evaluation). When dealing with teachers, it is politically important to distinguish which type of evaluation is being carried out and the purposes. Teachers possess negative attitudes towards evaluation which generally means to them grading and classifying students via standardized tests for the purposes of reporting scores to administrators. The atmosphere in which they operate often prohibits them from seeing how classroom evaluation could possibly be in their own interest. One author suggests a way of approaching evaluation which is consistent with teachers' attitudes. All improvement in education must ultimately result in the teacher's doing something different in the classroom. Hence, it is reasonable that evaluation be primarily a self-assessment. The teacher learns to use the reasearcher's instruments, applies the measures to his own teaching performance, tries out new behavior and checks again keeping the data in the teacher's hands dramatically reduces the threat of the evaluation and increases the chance of depersonalizing school life. Contrary to common belief, prespecifying objectives has many disadvantages. It requires much time and effort. Almost always the objectives easiest to measure and least controversial are emphasized. Prespecification also decreases emphasis on subject matter. Perhaps most damaging, there is little empirical evidence that prespecification leads to better results. Furthermore, for performance contracting, validated and reliable tests do not exist.

The remainder of Part IV is devoted to the systems approach to evaluation, or more specifically - systems analyses; program planning and budgeting systems (PPB), cost-benefit analyses and operations research. Articles in this section describe their assumptions, efficacy, benefits, strong and weak points. More specifically discussed are the weaknesses in these approaches due to: use of poor performance criteria, poorly trained evaluation teams, unclear relationships between evaluation criteria and program effects, bureaucracies' needs to use "fitness measures" as evaluative standards to satisfy external groups for economic reasons, and the underlying philosophical view points about educational accountability.

The last part entitled "If nobody agrees", evaluation without a consensus on goals explores courses of action that may be pursued when there is no goal consensus, as increasingly seems to be the case. One approach is to search out goal consensus or try to create it. Another approach is the use of needs assessment techniques to determine public priorities where diversity of responses is reported. The last three sections provide alternatives for the situation where there is no definable consensus. In the first alternative "goal conflict" is discussed. It is a model borrowed from the legal adversary proceedings approach. It exposes values inherent in the program; it considers the congruence between the program and the system to

fit into; it reveals how different people may interpret the same data; and it provides a way of resolving disputes. The second alternative makes three assumptions: that it is possible and desirable for various public groups to understand educational institutions; that it is possible and desirable for the public to have access to policy-making power; and the increased public involvement is good to achieve this enlightenment, the public must seek data, synthesize the data, fill in the gaps where no data exist, and judge the school on the basis of the data. Emphasis on public disclosure requires some commonly accepted indicators which would be handled by a public information agency (i.e., consumer agency for education, whose function would be to aid the public in understanding the schools and to aid the schools in finding out what the public wants). The last author suggests avoiding the problem of goal definition and just evaluating program effects, although the evaluator may infer goals later. Furthermore, the last author suggests that the evaluator should not infer with the program's "creative or exploratory process" (i.e., to define its goals while in process).

House, E. R. The politics of educational innovation. Berkeley, California: McCutchan Publishing Corporation, 1974.

Direct personal contacts are the medium through which innovations must flow. Innovation diffusion is directly proportional to the number, frequency, depth, and duration of such contacts. Networks of personal contacts are not random. They are highly predictable and stable, strongly structured by the hierarchial nature of organizations and the nature of urbanization. The influence of these forces on innovation diffusion in education is profound.

A school superintendent's view of whether an innovation has been adopted is not an accurate indicator. Information must come from classroom teachers. Innovation may be adopted in whole or in part. The burden of innovation falls on the teacher since they must learn the new skills which are required. Innovation can be realized only through changing the work skills of the teaching force, or it cannot be realized at all.

Hoyt, J. B. Monographs on career education: perspectives on the problems of evaluation in career education. Washington, D.C.: Office of Education, U.S. Department of Health, Education, and Welfare, 1977.

During 1975-76, the Office of Career Education (OCE) conducted, through provisions of a grant made to The Center for Vocational Education, the Ohio State University, a series of 27 "mini-conferences" covering a wide range of career education topics. Two of these "mini-conferences," one involving expert practitioners and the other involving general consultants, were devoted to the general topic "Evaluation of Career Education."

It is the results of deliberations from these two conferences that are summarized here. The general notes, on which this monograph is based, are contained in the technical report by Dr. Richard Miguel, Project Director for the Office of Education (OE) grant concerned with the 1975-76 "mini-conferences."

The following generic changes were identified as goals of career education:

1. A change away from strict dependence on didactic instruction and towards a more activity-oriented, experiential approach to learning.

2. A change away from a single approach to instruction and toward the use of a variety of methods for use by both teachers and students in the teaching/learning process.

3. A change away from depending on the teacher as the sole instructional resource available for helping students learn and toward the use of a wide variety of community resource persons in the classroom.

4. A change away from limiting instruction to formal classroom settings and toward greater use of community as a learning resource center.

5. A change away from emphasizing to students how they have failed and toward emphasizing to students how they have succeeded.

6. A change away from worshiping time as a criterion for certifying educational accomplishment and toward the use of performance evaluation.

7. A change away from a great dependence on commercially prepared materials as instructional aids and toward the use of "homemade" materials developed by teachers, students, and community resource persons.

8. A change away from emphasizing only the acquisition of specific entry-level occupational skills and toward adding an emphasis on helping students acquire adaptability skills required to change with occupational change.

9. A change away from emphasizing the goal of education, as preparation for work, only in terms of the occupational society and toward adding an emphasis on education for productive use of leisure time.

10. A change away from viewing work experience as a kind of educational program and toward using work experience as a general educational methodology.

11. A change away from viewing the prime purpose of education as preparation for still more education and toward emphasizing the need to show students how and what they learn can be used outside the structure of formal education.

12. A change away from relegating the goal of education, as preparation for work, to only a portion of educational programs and toward finding ways of making this a meaningful goal of all who teach and all who learn.

13. A change away from strict dependence on professional counselors for carrying out the career guidance function and toward the addition of teachers, parents, and community resource persons in this effort.

Following are short descriptions of some of the current efforts of the conference participants.

Dr. Frank Rapley, career education project, Jefferson County, Kentucky, FY 1975. Initial attention was put on process evaluation. Six major objectives of the project were specified. Each objective was then sub-divided into a number of mission statements, each mission statement was further sub-divided into a number of task analysis statements. For each task analysis statement, persons responsible for performing the task were identified and a time line constructed indicating when that particular task was due to be completed.

Each quarter progress reports were prepared consisting of: (a) self-reports of persons charged with performing each task, and (b) interviewing data collected from at least a sample of intended recipients of the activity. In addition, quarterly reports, known as "Documentation Reports" were prepared, in computerized form, consisting of three parts: (a) Action Plan Reports; (b) Accomplishment Reports; and (c) Change reports. In this way, data were always available with respect to what each person intended to do, what he/she actually did, and a written rationale for changes in plans that became necessary as implementation activities were initiated. The "change reports" were especially valuable in helping in further conceptualization of career education goals and objectives.

In this project, a great deal of attention was paid to teacher activities in the classroom related to career education. At the time they were in the process of categorizing these activities in accordance with the Louisville Career Education model. A considerable degree of attention was devoted, in the total process evaluation effort, to (a) documenting the kind and degree of inservice education given teachers in career education; (b) verifying that what was learned through inservice was actually applied in the classroom; and (c) arranging what takes place in the teaching/learning process in some kind of conceptual hierarchy. The project operated conceptually within the teaching/learning framework of the school rather than an isolated activity.

Dr. Gary Jarmer, Colby, Kansas. Dr. Jarmer has devoted considerable time and effort to identifying, using and building new kinds of instruments

required for evaluation of career education. One instrument, developed by Glen Rask and Arvin Bloom in Colorado, is called the Teacher/ Administrator Career Education Needs Assessment. Its basic purpose is to measure the extent to which teachers and administrators understand basic career education concepts.

A second instrument, also developed by Rask and Blook, is called the Student Assessment Instrument. This is an instrument used for product evaluation in career education through direct administration to students. It measures such things as: (a) attitudes toward work; (b) self-awareness; (c) knowledge of occupations; and (d) future plans.

A third measure, developed by Dr. Jarmer, is designed to measure relationships between parent understanding and involvement in career education.

Dr. Elvis Arterbury, Partners in Career Education Project, Arlington, Texas. Dr. Arterbury has developed and validated instruments related to the nine learner outcomes found in the OE policy paper, An Introduction to Career Education. Working with Westinghouse Learning Corporation, 80 assessment measures were developed.

A total of 273 test items were developed for use in the Texas Career Education Measurement System (CEMS). These items were organized into 16 instruments for the measurement of 63 of the 80 basic learner outcomes. Furthermore, a 45-item survey test developed from the CEMS has been tested as a needs assessment tool.

Dr. Carroll Curtis, Career Resource Center, Pennsylvania. Dr. Curtis stated that the Career Resource Center has used a student rating scale as a tool for evaluating the effectiveness of the center. In addition to other things, he suggests that "Job Placement" and "Career Stability" are not good criteria for evaluating career education programs.

Dr. Janet Shelver, Career Awareness for Secondary and Elementary Students (CASES), Sioux Falls, South Dakota. This program built on a joint concern for self awareness and occupational awareness. To measure self-awareness, at the K-3 level, she has used the "Pictorial Self Concept Scale" -- a 50 card deck of pictures which pupils are asked to put in three stacks: (a) "like me"; (b) "sometimes like me"; and (c) "not like me." At the Grades 4-6 level, she uses Coopersmith's "Self Esteem Inventory to measure self awareness.

To measure occupational awareness, Dr. Shelver uses 14 slides of workers in various occupations, each representing one of the 15 OE clusters. (Marine Science was eliminated because no one in Sioux Falls is employed in that cluster.) Each slide depicted a worker in some occupation in Sioux Falls. As students are shown the 14 slides, they are asked to answer the following questions: (a) "Who am I?"; (b) "What do I do?"; and (c) "Sould I like this job?"

Using these instruments, Dr. Shelver fould that her career education efforts did serve to reduce occupational sex stereotyping among female (but not among male) pupils at the K-3 level. Further, she found that

the CASES career education approach did improve self concept of pupils at the Grades 4-6 level.

Dr. Arthur Berry, University of Maine. In the State of Maine, two major efforts have been aimed at evaluation of career education. One of these, involving the use of pre-tests and post-tests of occupational imformation and terminology with teachers and counselors, was conducted in part by the National Alliance of Businessmenn Career Guidance Institute. Results indicated that teacher knowledge and perceptions of the occupational world were increased.

The second evaluation was conducted for Project REVAMP, a Part D, VEA career education project in South Protland, Maine. Project REVAMP attempts to infuse career education into the existing instructional program. The evaluation procedures were designed to measure the extent to which currently employed teachers, counselors, and curriculum resource persons incorporated career education activities into their regular activities during the school year. To accomplish this objective, the evaluation team (one from curriculum, one from guidance, and one from elementary education) meets with the local career education persons at the beginning of each year and helps them determine specific goals for the year. At the end of the year, they meet again to determine the extent to which the goals were met.

Process evaluation statements included such things as: (a) "150 pieces of career materials were distributed to pupils"; (b) "220 teachers received inservice staff development in career education"; and (c) "40 career interest and aptitude tests were given to high school students."

Dr. Thomas Smith, Covina Valley, California. In Covina Valley, teachers are encouraged to do his/her own thing in the classroom regarding career education. There has been a rapid growth of teachers taking this approach. However, it is very difficult to evaluate the effectiveness. As a result, Dr. Smith had his colleagues developed a student instrument called the "Career Development Status Survey," consisting of 50 items and based on the 13 basic career education concepts developed by the California Career Education Task Force. In applying this instrument, they found significant differences even among students who had been exposed to career education activities by different teachers, as well as differences between "exposed" and "non-exposed" students.

Further evaluation efforts have been made with respect to the career guidance component of career education. One example was a study using eighth grade pupils who were exposed to a very intensive guidance effort aimed at helping them make curricular and career plans. Data from a previous year's class of eighth graders showed 50% having "no plans" when in the ninth grade. After this effort, only 2% of these students said they had "no plans" when in the ninth grade. Another approach they have used is one of determining the extent to which ACT Career Planning Profile results coincide with the actual kinds of course enrollments made by students once they enter community college programs.

Dr. Smith outlined eight areas he considers appropriate for use in evaluating career education including: (a) results of incremental improvement efforts of teachers to infuse a career emphasis in the teaching/learning process; (b) student knowledge of occupations; (c) student knowledge of available postsecondary educational preparation programs; (d) student and teacher knowledge of basic career development principles; (e) student knowledge of reality factors impinging on full freedom of occupational choice (e.g., geographic, financial, etc.); (f) student skills in the decision-making process; (g) student knowledge of followup results from past classes of students and (h) "customer satisfaction" results from students and the various kinds of individuals responsible for implementing career education.

Dr. Richard Ruff, State Department of Education, Arizona. Now in their fifth year of State-legislated funding for career education, the Arizona State Department of Education has developed an elaborate evaluation system for use in assessing their career education efforts. These include two 45-item student tests (one for Grades 3-7 and the other for Grades 8-12) containing items for each cell in the Arizona career education matrix. Using these product evaluation instruments, striking differences have been found between "career ed" as opposed to "non-career ed" students. As an example of the kinds of items used in the area of "self awareness," students are asked: (a) "How sure are you that you can do what you want to do?" and (b) "How sure are you of your occupational decisions?"

In addition to these product evaluation measures, Arizona also uses a process evaluation approach on an annual basis. Having such data available each year over a number of years has enabled them to say to members of the Arizona State Legislature such things as: "Over the last two years, we have had a 24% increase in parental involvement in career education." Dr. Ruff stressed the importance of collecting these kinds of data on an annual basis so that incremental improvement can be shown with profess evaluation approaches to career education.

Arizona also uses a High School Student Follow-up Questionnaire with students one year out of high school. This instrument contains items such as: "Did your high school prepare you to (a) get a job, (b) prepare for a job," etc. Data from this followup instrument are being used to show the general public that career education works right now in Arizona. Apparently, these data have been most effective in convincing people of the worth of career education. Arizona, like Colorado and Kansas, also have developed a test to measure teacher understanding of basic career education concepts.

Over the last several years, career education curriculum units have been developed by Arizona classroom teachers, validated by career education specialists in the Arizona State Department of Education, and then distributed to teachers throughout the State. Validation data, for each such unit, now includes answers to questions such as: (a) To what extent do pupils attain the unit objectives? (b) Do teachers enjoy using this unit?; (c) Do pupils enjoy the unit?; and

(d) What costs are involved in using the unit? If one were looking for a single State Department of Education where career education evaluation has been systematically and carefully studied, it would be hard to find a better example than the Arizona State Department of Education.

Dr. Phillip Spieth, Dade County, Florida. The Dade County (Miami, Florida) career education effort operates with a number of components developed at the county office level. Each school is free to pick those components (if any) that they want to use in their career education activities. Thus, each school has, in a sense, a unique program. Partly for this reason, evaluation plans for career education call for selecting both experimental and control pupils from within the same school -- not in comparing pupils in one school with another.

Considerable attention has been devoted, especially at the elementary school level, to assessing the effects of a career education emphasis on improvement in academic achievement of pupils. To do this, they have devised a complicated system for classifying pupils into "clusters" -- (e.g., white, low ability, etc.) -- that will allow them to determine for any pupil by the end of the school year, whether that pupil is doing (a) better than expected, (b) about as expected, or (c) worse than expected.

Perhaps because of the wide variability in specific career education practices adopted by the various schools in the county, mixed results have been obtained in evaluations of career education. In some schools, pupils appear to have gained significantly in academic achievement, while in other schools they have not. The only apparently consistent finding that appears to hold up, county-wide, is that pupils exposed to a career education approach come to school more frequently than do those who are not exposed to career education. (In one school comparison, they also found that, with a career education emphasis introduced, teacher attendance as well as pupil attendance increases.) Another possible reason for the observed variability of results is that during the 1974-75 school year, the experimental treatment period was only six months. For 1975-76, the period is intended to cover the entire school year.

The consultants at both mini-conferences concerned with evaluation of career education made recommendations regarding changes, additions to, and measurement of the OE learner outcomes for career education. They are listed below.

GOAL 1: Competent in the Basic Academic Skills Required for Adaptability in our Rapidly Changing Society

A clear majority, but not all, of the consultants considered this to be a reasonable learner outcome goal for career education. In view of OE's Office of Career Education, this is the single most important learner outcome goal for career education, as a vehicle for educational reform. A proposal for educational reform that ignores this learner outcome goal cannot, in the

Office of Career Education's (OCE's) opinion, be justified at all.

While most of the "mini-conference" participants agreed on the appropriateness of this learner outcome goal, they disagree on the kind of measures appropriate for use in measuring progress toward this goal. In the first of these two "mini-conferences," consensus seemed to exist that norm-referenced tests are what the general public wants and, thus, what should be used. A significant minority of these participants, however, argued strongly for use of criterion-referenced achievement tests have serious limitations and probably will be replaced with other approaches to measuring academic achievement, but most felt them to be more appropriate than criterion-referenced tests at the present time.

In the second of these "mini-conferences" on evaluation of career education, most of the discussion centered around the potential of some of the newer approaches to measuring functional literacy have for assessing this learner outcome goal. It was pointed out that several significant beginnings have been made in developing and in validating functional literacy measures. Most commonly mentioned were the functional literacy measures developed as part of the National Assessment of Educational Progress project of the Education Commission of the States. The recently much-publicized APL tests of functional literacy from the University of Texas were also discussed as promising. So, too, was a recent monograph by Dr. Thomas Sticht of HUMRO which contains a good working definition of functional literacy. Finally, the NIE Model IV (Mountain Plains) project was mentioned as one now developing functional literacy measures. A general consensus seemed to exist, in this second "mini-conference" that, while standardized norm-referenced achievement tests may be suitable for use in assessing this learner outcome goal for elementary school pupils, a measure of functional literacy would be preferable at the junior and senior high school levels.

In the view of OE's Office of Career Education, the use of norm-referenced achievement tests are appropriate, at this point in time, for use at both the elementary and secondary school levels in assessing this learner outcome goal. In addition, at the secondary school level, use of some kind of functional literacy measure should be encouraged. Use of functional literacy measures, as a replacement for norm-referenced achievement tests at the secondary school level, will become possible only when academic teachers at that level accept such measures as valid indicators of what they are teaching. It appears that this will not happen in the immediate future.

GOAL 2: Equipped with Good Work Habits

Both sets of "mini-conference" participants agreed that this learner outcome goal is both appropriate and measurable. However, disagreement and controversy was found on many of the

technical issues surrounding its use. For example, some participants agreed that it is feasible to consider measuring knowledge of good work habits, but felt that they could not be measured behaviorally. Others contended that behavioral measures of work habits are available. Some questioned the use of teacher checklists as indicators of pupil work habits, but others pointed out that, when such checklists are used with kindergarten pupils, the results correlate positively with reading score gains in Grade 1.

One person emphasized the fact that, with current restrictions existing on using any form of attitudinal measure as part of the pupil's grade, the potential for marking students on "work habits" may be questioned severely in some quarters.

Another very thorny problem was raised by one participant who asked what differences exist between what is known as "work habits" and the "work ethic." General agreement seemed to be present that these two terms, while not unrelated, should be kept as separate as possible in developing assessment measures. This, of course, can be most easily and clearly done if measures of "work habits" are developed in behavioral terms and measures of the "work ethic" are developed in attitudinal terms. (Note: The problem of distinguishing between these two terms is a conceptual one that could be debated at some length. It is not considered appropriate to include such a debate as part of this monograph.)

In spite of these several areas of disagreement and controversy, a clear consensus was present, among both sets of "mini-conference" participants, that this learner outcome goal is an appropriate one for use and that it can be measured in a satisfactory manner.

GOAL 3: Equipped with a Personally Meaningful Set of Work Values That Foster in Them a Desire to Work (Note: Revised from earlier OE statement)

This learner outcome goal, as originally stated in the OE policy paper on career education, had included the phrase "capable of choosing." Participants in both "mini-conferences" agreed that, at best, this is a phrase difficult to define in measurable terms. Several felt this phrase to be a meaningless one.

It was suggested that, in evaluating the degree to which this goal has been attained, evaluators seek measurements at the following three levels: (a) the number of kinds of work values of which the student is aware; (b) the definiteness with which the student has decided which work values are important to him/her; and (c)the behaviors the student has taken that demonstrate possession of one or more of his/her work values. Consensus seemed to be present that, at each of these three levels, suitable measures could be constructed. One seminar participant suggested that, perhaps, a simple process measure such as the number of teachers who are trying to reach this

objective might be sufficient for use, but this suggestion was not apparently accepted by most of the participants.

Several "mini-conferences" participants reported they are already collecting data related to this learner outcome goal. Joe Gastright reported having data for third and sixth graders around the question "Why do people work?" that produced dramatic results. Janet Shelver reported both first and sixth grade pupils in Sioux Falls seemed to pick up the concept of work values quickly and easily. Dick Ruff reported having data showing that elementary school pupils exposed to career education spend more time on homework than do non-career ed pupils (self report data).

It may well be that, for this learner outcome goal, two different kinds of evaluation measures may be required. As one participant pointed out, one can measure whether or not pupil possess work values. One can also measure pupil desire to work. However, one cannot measure directly the relationship between the two. This seems to be a very valid point and well worth consideration.

GOAL 4: Equipped with Career Decision-Making Skills, Job-Hunting Skills, and Job-Getting Skills

There was almost unanimous consensus, among participants in both of the "mini-conferences," that this learner outcome goal could be assessed. Consensus seemed particularly strong if the measures used consist of instruments assessing knowledge of such skills rather than behavioral demonstrations of their uses. There also seemed to be consensus that, even if direct behavioral assessments based on routine actions could not be assessed, this learner outcome goal lends itself very well to assessment through simulation procedures which are behaviorally oriented. Both Dick Ruff and Elvis Arterbury reported success in measuring this goal through knowledge tests.

Other possible instruments for use in measuring this learner outcome goal were suggested by several participants. For example, Houghton-Mifflin's Assessment of Career Development has a section on "work skills" that could be useful here. Dr. Robert Campbell, Center for Vocational Education, Ohio State University, was reported to have a "job-coping skills test" which would be suitable for assessing the variable of "job-holding" skills. Both "job-seeking" and "job-getting" tests were reported to be available from the Center for Research in Vocational Education, the University of Wisconsin. Several participants recommended examining measures in all of these areas not available from the National Assessment of Educational Progress project conducted by the Education Commission of the States.

GOAL 5: Equipped with Job-Specific Occupational Skills and Interpersonal Skills at a Level that will Allow them to Gain Entry into and Attain a Degree of Success in the Occupational Society (Note: Revised from earlier OE statement)

The original OE statement of this goal, as it appears in the OE policy paper, contained a typographical error in that the word "personal" was used rather than the word "interpersonal" which was intended. In addition to correcting this misprint, participants suggested substituting the phrase "job-specific occupational for the word "vocational" so that clear and unambiguous reference is made to the world of paid employment (i.e., the generic term "vocational" can be interpreted to include unpaid as well as paid work). With these two changes, participants in both "mini-conferences" agreed that this learner outcome goal is suitable for use and capable of being measured.

The prime reservation, insofar as the measurement problem is concerned, was expressed in terms of pointing out that an accurate assessment of "job specific occupational skills" would require literally thousands of specific measures -- both paper and pencil tests and performance measures. Others pointed out that, if one limits his/her thinking to the job entry level, the problem may not be as complicated as it appears to be at first glance.

One participant suggested that the term "interpersonal skills" be removed from this learner outcome goal and made a part of Goal 4. No strong consensus appeared to be present on this point. There did seem to be consensus that the term "interpersonal skills" should be retained somewhere among the learner outcome goals.

Participants in the first of these two "mini-conferences" agreed that student followup data would constitute appropriate data for use in assessing this learner outcome goal. However, participants in the other "mini-conference" disagreed with this suggestion. OE's Office of Career Education believes that, while followup data constitute one form of acceptable data for thie learner outcome goal, they will not be sufficient in and of themselves.

GOAL 6: Equipped with a Degree of Self-Understanding and Understanding of Educational-Vocational Opportunities Sufficient for Making Sound Career Decisions (Note: Revised from earlier OE statement)

As originally written in the OE policy paper, this learner goal assumed a direct causal relationship between student self-understandings, understandings of educational-vocational opportunities, and actual career decisions made by students. Participants seemed to agree that the learner outcome goal would be more susceptible to accurate measure if it concentrated on

possession of skills required for making sound career decisions without carrying any necessary implications for making judgments regarding the soundness of those career decisions any given student finally makes. That is, the emphasis should be on whether the decision is "reasoned," not on whether it is "reasonable" (as judged by others). The revised goal statement appearing above appears to meet this concern.

One participant suggested that the term "career planning skills" could be substituted for the longer phrase used in this learner outcome goal and that, if this is done, that term could be added to others already present in Learner Outcome Goal 4, thus making Learner Outcome Goal 6 unnecessary. There did not seem to be any strong agreement with this position. Thus, that recommendation was not followed.

GOAL 7: Aware of Means Available to Them for Continuing and Recurrent Education (Note: Revised from earlier OE statement)

Participants suggested eliminating the phrase "once they have left the formal system for schooling" from this goal statement in that it is unnecessary, given the predicatory statement that precedes the list of learner outcome goals. This seemed to be a good suggestion and it was followed.

Several participants pointed out the necessity for collecting data, with reference to this learner outcome goal, primarily in terms of the immediate future faced by students as they are about to exit from the formal school setting. That is, there will be no good way of assessing the degree to which they will be aware of such means several years after having left. Others disagree with this suggestions and recommended that, if "means" are thought of as "skills," they can be assessed through more kinds of measures than simple tests of information. No participant, in either "mini-conference," indicated this learner outcome goal to be inappropriate nor incapable of measurement.

GOAL 8: Either Placed or Actively Seeking Placement in a Paid Occupation, in Further Education, or in a Vocation Consistent with their Current Career Decision (Note: revised from earlier OE statement)

General consensus, at least among the second group of "mini-conference" participants, appeared to be present that, as originally written, there was no way in which any student could fail to meet it -- thus making the goal, as a criterion measure, operationally useless. Others pointed out that, unless the words "actively seeking: were inserted into the goal statement, too many students would be sure not to meet it. The revised learner goal statement, as it appears above, represents a compromise between these two expressed concerns.

Participants in the first of these two "mini-conferences" agreed that student followup studies would constitute an

appropriate measurement approach to use in assessing this leaner outcome goal. Participants in the second "mini-confernce" did not disagree with this recommendation.

GOAL 9: Actively Seeking to Find Meaning and Meaningfulness Through Work in Productive Use of Leisure Time (Note: Revised from earlier OE statement)

As originally written in the OE policy paper, participants in the first of the two "mini-conferences" agreed that the goal was incapable of being measured. Prior to the second of these "mini-conferences," the Director of the Office of Career Education in OE revised the goal statement as it appears above. With this revised goal statement, participants in the second "mini-conferneces" seemed to agree that the goal was both reasonable and capable of being measured.

GOAL 10: Aware of Means Avaliable to Themselves for Changing Career Options -- of Societal and Personal Constraints Impinging on Career Alternatives (Note: This is a new goal and does not appear in the OE policy paper)

The suggestion for addition of this new learner outcome goal comes from Dr. Anita Mitchell, a participant in the second of these "mini-conferences." Dr. Mitchell pointed out that, as written, the set of OE learner outcome goals are directed primarily toward helping individuals adjust to society rather than showing them ways of adjusting society to themselves. Other participants in this "mini-conference" seemed to be in strong agreement with Dr. Mitchell on this point. So, too, was the Director of the Office of Career Education.

The topic of how to measure this learner outcome goal was not discussed. It would not seem unreasonable to assume that it could be measured, at least on a knowledge of information type instrument. As with several of the others, it would be difficult to measure in behavioral terms unless broken down into smaller components.

Hull, W. L., and Bina, J. V. The influence of selected organizational and administrative variables on continued and extended use of exemplary projects in vocational education. Columbus, Ohio: The Center for Vocational Education, The Ohio State University, 1977.

This is a report of an exploratory research study which examined selected administrative and organizational variables of exemplary Part D projects funded during the first cycle, July 1, 1970, through June 30, 1973. Specific administrative procedures were related to continuation and replication of exemplary project activities. One of the primary means of improving vocational education, the demonstration of exemplary project results should increase the use of exemplary materials and activities.

The objectives of the study were twofold: (1) to examine administrative and organizational variables which influence continuation and replication of materials and activities of exemplary projects; and (2) to formulate this knowledge into a brief, useful demonstration guide for local project directors.

Two survey instruments were developed based on a literature review and the assistance of steering committee members. A mail survey with followup procedures by telephone and mail was the primary means of data collection. Fifty four of 59, or 92% of the vocational education exemplary project directors responded. Thirty-nine of 79, or 50% of the replication site respondents returned the questionnaires. Followup visits to selected exemplary sites for the current year were used to check the validity of the survey. Onsite personal interviews with 26 selected project directors and staff members in 11 states were conducted. During these visits, project personnel reviewed drafts of the demonstration guide.

A key finding indicated that those sites most likely to continue the demonstration collected evaluation data more frequently than those sites less likely to continue. Additional findings indicated that project continuation was associated with: (1) use of an experienced project director; (2) use of weekly staff meetings; (3) use of one to six hours of staff inservice; (4) and the use of students and labor representatives on advisory committees.

Several studies of exemplary projects were reviewed. In the project baseline study (1975) Lee reported that 40 of the 54 exemplary projects had some impact beyond the school district Extensive impact was described as acceptance in a majority of the schools in the state which were using some or all of the concepts, materials, and other products of the host site. One measure of success used was the degree of continuation with state and local funds upon termination of federal funds. Some projects continued at a level equal to or greater than that during the federally-funded period and others reported reduced continuation.

The Project Baseline reported problems encountered by project directors including the erosion of continuity, local support and confidence during initial funding periods due to the widespread problem personnel; and lack of clearly defined goals and objectives. Additionally, the achievement of project goals within the time constraints was difficult if planning had not occurred prior to funding.

The Rand Study (1975) indicated that project success and continuation is highly related to the role of the project director both in the project and the school system.

Development Associates (1975) reported that 76% of the 50 projects studied had a dissemination plan but only 18 projects had a plan in written form. Since the projects

were studied in the last year of federal funding, they were asked their continuation plans. Some reported that continuation would occur at a greater level than during federal funding, some at the same level, some at a reduced level, and others would not be continued. The most likely reasons given for limited success were lack of exemplary projects including a lack of clearly defined objectives, definitions, and managerial procedures at both the project and federal levels.

McCaslin and others (1976)* studied 61 research and development projects in Kentucky to determine their impact on school systems. At least ten visits were made to local school districts. They found:

1. High impact projects use more objective data (tests, empirical data, etc.) to evaluate effectiveness while low impact projects use more subjective data (opinions, testimonials, site review teams).

2. High impact projects provide more adequate orientation for participants concerning their role in the project.

3. High impact projects allow project objectives to change during implementation.

4. High impact projects involve participants more fully in project planning.

5. High impact projects have more accessible planning documents, such as PERT or time effort charts and objectives.

6. High impact projects have less turnover of project staff.

7. High impact projects tend to be sponsored by organizations who have conducted prior research and development efforts.

8. High impact projects have more adequate support services (secretarial, printing, graphics, etc.).

9. High impact projects have more directors from district or regional level (p. 76).

Following are the questionnaire items used to measure continuation and dissemination.

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*McCaslin, N.L., Adams, K.A. and Gross, C.J. An evaluation of the resource development unit of the Kentucky Bureau of Vocational Education. Columbus Ohio: The Center for Vocational Education, the Ohio State University, July 1976.

D. CONTINUATION

1. Were exemplary project activities continued beyond the termination date of the project?

   ____ Yes ____ No (If no, go to question E-1)

   1.1 What was the continuation strategy? (Continuation is defined as the presence of fundamental activities of the exemplary project in the school district following termination of federal funds.) (Please check one)

   _____ Continued at low level of effort. (No funds were invested in the project. Teachers were allowed to use instructional materials already developed but no new materials were developed.)

   _____ Continued at one third of the original level. (Some funds were spent on this project. Teachers were released for limited development activities, responsibility for supervision of the project was assigned to an administrative staff member.)

   _____ Continued at moderate level of operation. (Project is funded at from one half to two-thirds of the original level. Personnel are paid from project funds.)

   _____ Continued at full operation. (Project costs have been assumed by state, intermediate, or local agencies for the operation of the project. The project is fully staffed in all activity levels.)

   _____ Continued at an expanded level of operation. (Exemplary project materals and activities were introduced into new schools and expanded since the termination of federal funds. More materials are being developed than before at a higher cost to the school district.)

E. DISSEMINATION

1. Did the project include a strategy for dissemination of results?

   ____Yes ____ No (If no, go to question F-1)

   1.1 What was the dissemination strategy? (Please check all that apply.)

   _____ Printed messages aimed primarily at the local community (newspaper articles, etc.)

   _____ Printed messages aimed at other school districts (newsletters, etc.)

   _____ Verbal messages within the community (radio, TV spots, presentations to civic organizations, etc.)

_____ Verbal messages aimed at other school districts (conference appearances, demonstration centers, etc.)

_____ Technical assistance was provided to teachers and others within the school distirct (consultation, demonstration, etc.)

_____ Technical assistance was provided to other school districts (demonstration teams, exhibits, open houses, etc.)

Conclusions

1. Demonstration project directors developed staff position descriptions prior to employment of staff.

2. Local school districts were accepting responsibility for continuing demonstration projects following the termination of federal funds.

3. The conduct of a community survey by a school task force improved the changes of a demonstration project being implemented on site.

4. Projects directed by experienced individuals tended to continue on site more frequently than projects directed by inexperienced persons.

5. Communication among staff members was important; frequent staff meetings provided an opportunity to improve project activities.

6. Frequent inservice sessions with school staff provided an opportunity for project personnel to influence others to accept project results.

7. Informal communications tended to dominate frequent interaction with school staff and others while formal interactions occurred once a month or less often with board members and the superintendent.

8. Frequency of evaluation was directly related to the degree of continuation on site.

9. The dissemination strategies used by project directors showed no relationship to the continuation of projects on site.

10. School district administrators represented a key audience for the dissemination of information about exemplary projects.

11. Technical assistance to most replication sites was limited to consultation services.

Recommendations

1. Written position descriptions which differentiate staff members' roles and responsibilities should be completed prior to employment.

2. Despite the tendency of a few local school districts to implement demonstration projects on site, more districts should be encouraged by the state education agencies and others to try promising innovations.

3. School districts should collect and maintain records of needs assessment data (including community surveys) for proposal writing activities.

4. Experienced persons should be employed as demonstration project directors whenever possible.

5. Demonstration project staff members should meet at least once a week.

6. At least three hours of inservice should be conducted with school staff during each month of the project.

7. Project directors should communicate with key school staff and others as frequently as necessary, preferably in an informal manner at least once a month.

8. Evaluation data should be collected once a month or more often for an effective demonstration project.

9. More effective dissemination/implementation strategies should be devised to assist project directors in influencing others to accept project results.

10. Awareness literature and other types of communication describing exemplary projects should be distributed through formal and informal networks of school administrators.

11. Incentives should be made available for replication site personnel to receive a wide range of technical assistance services.

Hull, W. L. & Kester, R.J. Perceived effectiveness of innovation diffusion tactics. Columbus, Ohio: The Center for Vocational Education, The Ohio State University, January 1975.

Research was conducted to study the perceived effectiveness of diffusion tactics. A 50-item instrument was developed to identify underlying dimensions of clients as potential adopters of education innovations. These instruments were sent to teachers and principals in school districts selected from three states. Seven

categories of diffusion tactics were used: tell, show, discuss, influence, involve, offer a reward/threaten to punish, and mandate or order. Respondents stated that they preferred tactics that were designed to influence or persuade over the others. The following stages of adoption were identified: awareness, interest, evaluation, trial, and adoption. Diffusion tactics are perceived to be most effective at the awareness stage of the adoption process with a progressive loss of effectiveness for each succeeding stage as the client gains more information. The research findings also indicate that clients asked to try an innovation for the first time in a school setting should be those who are viewed by others as relatively influential in the change process and tactics which use information that appeals to the client are likely to be welcomed.

Jacobson, T. J. & Scheufler, J. H. An innovative career education/career guidance project for a suburban school district, exemplary project in vocational education conducted under Part D of Public Law 90-576. La Mesa, California: Grossmont Union High School District, June 1968.

Broadly, the goals and objectives of the project were to design and implement three separate components. These were a curriculum component, a guidance information component (GIS) and a placement system component. The objective was to integrate these three components into one salient feature introducing it to both the faculty and students within the district (three high schools) and some schools (three elementary education public schools and one parochial school) outside the district.

The formative evaluation dealt mainly with goal attainment. The specific formative evaluation criteria for judging the success of this program's GIS component were:

1. Number and percent of students who have used the GIS, and of those who used it, the percent of students who found it useful.

2. Student/teacher comments (obtained informally) regarding materials developed for the GIS.

3. Usefulness of GIS materials as evaluated by the number of requests made for them by project schools.

4. Number of students who were certified as competent to operate the computer used in connection with GIS.

5. Number of times target school counselors reviewed, used, and evaluated materials used/developed in the Guidance Curriculum as determined through personal interviews.

6. Survey of students who had been given standardized occupational preference tests two years prior to determine if they

thought such tests had been helpful in educational and career planning. The tests tried were: OVIS, Kuder General Interest survey, California Occupational Preference System, Differential Aptitude and Career Ability Profile Survey

The specific criteria used for judging the success of the program's curriculum units were number of units developed, percent of these which had to be revised upon field testing, and extent of use outside the high school district.

The job placement component was tested by determining the number of students introduced into this component throughout the high school district or specifically from each high school, the number of jobs found and the number of interviews obtained for students who used the job placement component.

Dissemination of the program was described in terms of the number of presentations made about the program to statewide professional organizations and community or civil groups. Visits were made to the project although no log was kept.

Kowitz, G. I. Six hard questions to answer before you buy or bond another of those innovations. American School Board Journal, 1971, 15, 33-38.

"Those are lemons being passed off as apples of the eye of many a boardman and superintendent, warns the author who just happens to have some tests that detect the innovation amid the fads" (p. 33). He asks six questions of innovations before adopting/adapting them:

1. How should an innovation be evaluated? (Against current programs with the same goal to insure change for the better not worse to be within budget).

2. How does the innovation view the student as a person? ("don't fall into the trap of misinterpreting the commitment to individual student differences" (p. 33) or level of student maturity it requires to be effective.)

3. What does the innovation assume about learning process? (i.e., learning theories and their compatability, or lack of, in a single curriculum.)

4. How does the innovation view the student as a learner? Some of the most expensive innovations ever undertaken attempted to salvage students who consistently failed to achieve academically.

5. What are the goals of the innovation? Ideally, it should prepare the student to function in a Kaleidoscope world of changing occupations, social groups and shifting values

and to change his views and actions to meet new demands.

6. Is the innovation administratively feasible? (not if sufficient funds are not allocated to it). Shifting around small amounts from one budget category to another does not make an innovation feasible in terms of staff training requirements.)

Lippitt, R. D. & Fox, R. S. Identifying, documenting, evaluating and sharing innovative classroom practices. (Adapted from a portion of a final report, The innovation and sharing of teaching practices). Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, 1973.

The main objective of this experiment was to "modify a teacher's self-concept so he/she could come closer to see him/herself as an educational leader and active developer and adopter rather than an educational mechanic working routinely with someone else's tools" (p. 2). A survey of teaching practices and a face-to-face sharing of ideas at one-day conferences ("The Sharing Institute") were designed to identify innovative practices, to legitimize the sharing of them and to develop criteria for evaluating the relevance and importance of particular innovations. The entire effort was part of a project involving four neighborhood schools and school staff, a state organization of teachers in which the former provided an organizing link and the latter acted as researchers and disseminators.

By means of a survey questionnaire, 500 teachers described a total of 200 incidents of implemented innovations (i.e., being implemented by themselves personally and/or by other teachers). More specifically, teachers described: the innovation, its goals, resources/materials used, when used and how, and success in terms of their own impressions about facility of use and effectiveness and weaknesses/suggestions regarding avoiding pitfalls in the future.

A panel comprised of the center's social scientists and state/local educators used four criteria for acceptance of the innovations and developed a 23-point rating scale to rank the accepted innovations until a set of 30 innovations was developed. Criteria for acceptance of a policy/practice as an innovation were the following: (1) used by few teachers; (2) could be used to cope with universal classroom problems; (3) are most adequately developed and seem to demonstrate greatest potential for accomplishing stated purposes; and (4) attempt to enhance student motivation for learning and/or improve the socio-emotional classroom climate. The 23-question subjective rating scale used to evaluate an innovative practice had two points relating to soundness of the practice (i.e., based on (1) theory/research and (2) teacher/staff impressions); and 12 points

dealing with potential adaptability and spreadability of the practice. As described on the rating scale, potential adaptability involved: (1) accomplishment of an important purpose; (2) adaptability to existing teaching style(s); (3) investment of time/energy; (4) need for special training; (5) ability to have a "trial run"; (6) ease in communication of details about the practice; (7) requirements for special equipment and props; (8) acceptability to administrators (principals, curriculum leadership personnel, superintendents); (9) consideration of pupils' individual/group differences (e.g., age, sex, social class); (10) need for gaining cooperation from other teachers; (11) acceptability into the regular curriculum; (12) visibility of possible success. The last nine questions gave criteria having to do with the significance of the practices for a specific program goal (in this case, enhancing pupil motivation for learning and improving classroom socio-emotional climate). These criteria included the innovation's capacity to (1) help students to discover and use others academic skills, (2) increase individual pupil responsibility and motivation for learning; (3) involve pupils in planning, executing and evaluating the innovation; (4) enhance development of peer relations and standards in support of learning; (5) enhance pupils' positive attitudes towards school work; (6) enhance pupils' feelings of self-worth; (7) contribute to a supportive peer relations and standards conducive to mental health; (8) contribute to positive pupil-teacher relationships; and (9) help the group have a wider variety of friendships.

Thirty of the most promising innovations were put into a catalog and distributed to four neighborhood schools. Although teachers provided with a catalog were asked to comment on it (tell whether they (1) didn' t understand the catalog, (2) found nothing new in it, would probably try an innovation, or would like more information regarding an innovation), 63% did not return the postcard on which the comments were to be recorded. A second postcard was mailed to those who said they would try an innovation, and the returned postcards suggested they never did try any innovations.

In an attempt to discover why teachers were not innovating, teachers and research staff conducted a brainstorming session during which participants generated possible facilitating and hindering forces regarding diffusion of teaching practices among and between teachers. The diagnosis of difficulty seemed to lead in two directions: (1) it seemed necessary to introduce more face-to-face sharing of practices; and (2) it seemed crucial to work on creating in school staff the psychological and social conditions of readiness to motivate others, and to innovate and adapt the practices developed by others.

As a result of the brainstorming, the "Sharing Institute" was developed as a way of identifying and sharing creative teaching practices. By means of a one-day conference, teachers were brought together and introduced to the concept of innovation

sharing. This "Sharing Institute" was felt by participants to be very helpful and was subsequently continued.

Loucks, S. & Hall, G. Assessing and facilitating the implementation of innovations: a new approach. Educational Technology, 1977, 17(2), 18-21.

This article describes a current research effort to represent and assess critical dimensions of individual innovation adopters (i.e., teachers) and proposes ways that these dimensions can be applied in the school setting where change is taking place. It describes the Concerns-Based Adoption Model (CBAM) where innovation adoption is viewed as a highly personal experience distinguishing innovation adopting teachers from other teachers. These teachers are different in attitudes towards and in skill-use regarding the innovation.

Genrrally speaking, the innovation-adopting teacher moves through seven stages of concern about innovations. These are: (1) lack of awareness/concern, (2) informational, (3) personal, (4) management, (5) consequential, (6) collaboration, and (7) refocusing. The first three stages suggest that at first the teachers are concerned about what the use of the innovation will mean to them professional status, rewards and roles. As their first use begins, they become concerned with methods and logistics. With more experience, they become more concerned with learner effects and finally with integration of the innovation into the total educationl system. It appears that concerns have a direct effect upon performance and that lower level concerns must be alleviated before higher level concerns can emerge.

At the same time as the individual's concerns progress, so too does familiarity with the effectiveness in using the innovation. Levels of use include: (1) non-use, (2) primary orientation, (3) preparation, (4) mechanical use, (4) routine use, (6) refined use, (7) integration, and (8) renewal. First, use is typically disjointed, with management problems common. With continued use , management problems become routine and the teacher is able to spend more time in providing effective instruction to students as a group and individually and is integrating what he/she is doing with what other teachers are doing. Use and concerns do not progress at the same rate although in theory there is a one-to-one correspondence.

Such a system can be used to evaluate innovations in a formative sense and in helping design inservice workshops to teachers.

MacDonald, B. Briefing decision-makers. In E. R. House (Ed.), School evaluation - the politics and process. Berkeley, California: McCutchan Publishing Corporation, 1973.

This article describes an educational innovation concerned with teaching humanities to pupils aged 14 to 16 of average and below average ability. The project was set up in England by the Nuffield/Schools Council Humanities Curriculum Project in 1967. Five major premises of the project included: (1) "with adolescents, controversial issues should be handled in the classrooms; (2) the teacher accepts the need to submit his/her teaching in controversial areas to the criterion of neutrality at this stage of education, that is, that he/she regards it as a part of his/her responsibility not to promote his/her own view; (3) the mode of inquiry in controversial areas should have discussion, rather than instruction, as its core; (4) the discussion should protect divergence of view among participants rather than to achieve consensus; and (5) the teacher as chairman of the discussion should have responsibility for quality and standards in learning" (pps. 174-175). Evaluators assumed teachers could develop effective teaching strategies and the project stressed teacher input into creative curriculum development.

All 36 pilot schools which participated in the project beginning in the Fall of 1968 volunteered or were volunteered by local education authorities and there were no particular criteria for participation. The experimental schools were distributed throughout England and Wales and located in rural, suburban and urban environments. They varied in type, size, organizational structure, formal characteristics of their clients, number of staff, and extent and nature each school received from its local authority. Problems in implementing the innovation stemmed from: (1) the underestimation of required changes in administrative procedure (e.g., support by principal, schedule changes); (2) teacher-student resistence to change due to an inability to change style of interaction; and (3) lack of understanding concerning the nature of the innovation (problems in the use of the materials, etc.)

Discussed were the aspects of context, input, process and outcome regarding the project. It was found that project school contexts varied greatly. Project inputs included the curriculum materials and resulting problems in implementation by teachers and external forces of support. The process component was evaluated via questionnaires, audio-taped discussions and videotaped observations and visits to schools (although only half were visited) to observe students and teachers and case studies of six schools. Questionnaires were used to assess teacher attitudes and understanding of project theory (after orientation at conferences). Case study strategies included observations of classrooms, interviews with staff, pupils and parents; and, "gathering detailed information about the various forces and circumstances both inside and outside the school that might be exerting an influence on the project" (p. 183).

The evaluation design included a sample of 100 large participant schools and 12 participant small schools. In the large sample, the following data were collected for a process evaluation: (1) input, contextual, and implementation data by using a questionnaire; (2) judgment data from teachers and students; (3) tracing variation in teaching practice through the use of specifically devised "multiple-choice, feedback instruments that require minimal effort by teachers and are monitored by pupils; and (4) semi-structured diaries written by teachers Output evaluation consisted of pre- and post-data on teachers and students in the project schools. For pupils, objective tests were used.

In the smaller sample, there was only a process evaluation conducted and this evaluation included: "(1) case studies of patterns of decision-making, communication, training and support in local area; (2) case studies of individual schools within these areas; and (3) a study of the dynamics of discussion by audiotape, videotape and discussion" (p. 186).

Mahan, J. Qualitative indices for selected educational innovations. Teacher Education Forum, 1975, 3(8), 1-12.

The article raises the following questions: (1) "Are unique instructional behaviors distinguishable in a room where an innovation has been implemented at a very high quality level? (2) What are several observable behaviors or indices associated in some of today's most publicized innovations? (3) What specific behaviors can teachers generate for themselves and their pupils under innovative conditions? (4) What indices do we...feel are important? (5) Who should generate behavioral indices" (p. 12)

Observable classroom behaviors -- indices used to assess implemented innovation (cultural pluralism in the classroom; individualized learning programs; open classroom and team teaching). The article includes a check-off list for qualitative indices regarding program innovations and cultural pluralism in schools. In general, certain criteria are suggested which can help the school administrator implement innovation:

1. Adopt innovations which have provisions for inservice preparation before it becomes operable and provisions for continuing inservice preparation during at least the first year of usage.

2. Know the philosophy, objectives, implied modes of learning and teaching techniques.

3. Draw contrasts between current teacher behavior patterns and desired new patterns. Set personal change goals.

4. Insist that exemplary models of highly effective use of the new program be presented and analyzed repeatedly in inservice sessions (e.g., via films, videos, tape recordings and live demonstrations).

5. Form teacher and/or administrator groups to generate acceptable sets of behavioral indices for faculty members and students who are utilizing the innovative approach. Strive for school consensus concerning the priority to be placed on the most critical indices. Consider student and/or parent involvement.

6. Use the indices for continuous self-evaluation. In addition, ask your team teaching partner...or a non-threatening outsider to rate you periodically against achievement of the indices. Monitor your own performance in a systematic way.

7. Make pupil achievement of pupil indices a key element in the evaluation... The indices are likely to have more application to a lifetime of problem-solving and coping than do standardized tests, oral responses and homework papers.

8. Try writing a few behavioral indices for the latest innovation you have adopted.

Marguiles, N. & Raia, A. (Eds.) Organizational development values, process and technology. New York: McGraw-Hill Book Co., 1972.

This book of readings deals with the topic of organizational development (OD) and attempts to "paint a picture of the [then] current state of the art" (p. 2). Included are a conceptual framework around which emerging concepts and techniques can be formulated and a compilation of relevant literature in the field.

The book is divided into five parts. Part I deals with the nature of organizational development and presents an overview of the OD process and technology. Part II is concerned with change, the consultative process and organizational learning as key elements in the process. Discussed in the third part are the concepts and techniques of data gathering, diagnosis, and intervention. Part IV explores some of the emerging issues in organizational development such as sensitivity training and the laboratory method. Part V outlines a number of case studies in OD.

McKinney, F. Program evaluation in vocational education: a review. Columbus, Ohio: ERIC Clearinghouse on Career Education, Ohio State University, 1977.

The purpose of this paper was to summarize and analyze significant literature on evaluating vocational education. The limited number of reviewed evaluation efforts reflect strategies and models typically used in vocational education evaluation. The following topics were discussed: purpose of evaluation; evaluation defined; evaluation models; needs assessment; former student followup (including definition, objectives, groups to involve in conducting followup studies, groups to follow up, techniques, instrument development and conducting the followup); employer surveys; student/parent surveys; cost benefit studies; information systems; state advisory council studies; and standards and reviews.

The following points reflect important ideas discussed by the author in regard to evaluation models and strategies:

1. Stevenson and Ward (1973) established three characteristics of an evaluation system that could be measured to determine the worth of that system - validity (data), effects (impact) and cost (time, effort, financial cost).

2. As schools have moved toward implementing evaluation systems, the development of clearly stated (and measurable) objectives in program planning has received increased attention.

3. Ball's evaluation model reported in Berkeley (1974) focuses on performance of students in transactional evaluation. Transactional evaluation judges the perceptions people have of a program and Bell (1974) contends the ultimate testing of any program lies in the perceptions of those who work in it.

4. Finch and Bjorkquist (1975) focus on context and input to discover what programs should be offering and process evluation is used to determine program effects on students while product evaluation focuses on former student outcomes. Wentling and Lawson (1975) suggested objectives for an employer survey.

5. Needs assessments are important because identified needs must be reflected in the philosophy and objectives of a program (needs assessment data can come from: (a) specially designed surveys or (b) previously conducted U.S. Census surveys, and can involve program participants, program staff, businesses/employers, students/parents).

6. With the increasing emphases on the outcomes of vocational education system as a gauge of the effectiveness of the program, there has been more following up of former students. Wentling and Lawson (1975) suggest several objectives for the followup study (to determine: career patterns, immediate demand for positions within the community, mobility of program graduates, adequacy of the educational

training of program in preparing the individual for job entry; adequacy of preparation for advanced training, adequacy of ancillary services such as guidance, realistic job descriptions, primary objective(s) of career education to staff and students, and to provide data for required reports).

7. McKinner and Oglesby (1971) suggest the involvement of the counseling service, vocational education teachers, school administrators, student and school governing board and citizens advisory committee in conducting the followup studies.

8. MacKinney and Oglesby (1971) suggest the followup study include data on those who did and did not graduate and possibly different schools (Grasso, 1975). Furthermore, the length of time out of the program effects former participants' answers as does total time in school (i.e., prior to, during and perhaps after program participation).

9. Techniques of collecting followup data include mail survey, personal interviews and telephone interviews.

10. Various methods have been used by vocational educators to secure feedback from employers about the adequacy of former student preparation (to determine: former students' performance; similarities/differences between former and current students; employer recommendations for improving the program; recruitment practices; competency list of specific course programs; supply and demand regarding occupations; how they can aid in the public relations of the educational/training institution).

11. Students and parents are important sources of information in conducting evaluations (e.g., measured by Ohio Vocational Interest Survey and Parent/Student Vocational Education Survey).

12. While cost-benefit studies are important for vocational education, there is a lack of research in the area. There are problems with estimating both costs and benefits as described by Wilson and Wilks (1971). Problems in estimating costs include: inadequacy and dissimilar accounting systems; (b) lack of uniformity and precision; (c) difficulty in knowing how a program's costs vary with expansion and contraction of variable inputs; and (d) difficulty of estimating costs arising from students' foregone earnings. The following problems are associated with estimating program benefits: (a) lack of foresight regarding student's future income and the temporal pattern which it will accrue; (b) difficulty of ascribing extra income to be earned as a result of participation in the program and not previous training, intelligence, motivation, etc.; (c) problem of comparing and aggregating income received; and (d) problem of quantifying such factors as opportunities for further training, intergeneration benefits and increased personal satisfaction.

Brasby (1970) suggests the following measures of program effectiveness: (e) academic improvement between pre- and post-program tests; (f) skill improvement between pre- and post-program tests; (g) absolute levels of academic and skill achievement at end of program based on test; (h) percent of persons completing program and placed in occupa-

tions where vocational education training skills are being utilized; (i) percent of persons who completed program; (j) percent of people completing program who are placed; (k) employment/unemployment experience following training (participants and non-participants); (l) opinion of program graduates as to how well the program prepared them for future employment; (m) opinions of immediate supervisors of program graduates on how well program prepared the students for employment (both absolute and relative to non-participants); (n) extent to which program is serving those persons for whom it was designed.

As control groups, Barsby (1970) suggests using all of the following: (1) those who entered the program but did not use the training; (2) those who entered the program but dropped out and did not complete training; (3) those who applied but did not show up; (4) those who registered with the employment service as needing jobs but did not apply for the program; and (5) friends and neighbors of program participants.

13. Vocational educators have concern for the development and use of meaningful information systems to facilitate planning and evaluation of vocational education (student data, instructor data, course data, space-facility use, student placement and followup, fiscal data, occupational demand/sources of occupational training, etc.).

14. The Kentucky State Advisory Council implemented a statewide evaluation system developed by Adams and McCaslin (1976). The system provided vehicle for advisory committee advice to vocational educators. It had the following four stages: (a) orientation to evaluation; (b) investigation of vocational education programs by interviewing vocational educators, students, former students and local employers; (c) report identifying needs for improvement, recommendations and commendations; and (d) communication of results to vocational educators. Information was provided at local, state and regional levels and focused on relevance of content, job entry skills and employable skills. Other methods include third party evaluations, the use of pre-existing data (Strong and Jarosik, 1972) and interviews with random samples of advisory committee members to investigate their effectiveness in assisting vocational education programs.

15. Standards of performance have been developed by USOE, state and regional organizations. These describe curricular and programmatic standards as well as evaluation criteria and methods. (See North Dakota Board of Education (n.d.), American Vocational Association (1971), Division of Vocational Education, Arizona State Department of Education (1973) and Meyer (1972).

16. Reviews of vocational education have been conducted in various evaluations in order to determine whether needs of special populations are being met to determine program eligibility for accreditation and to determine how vocational-technical education programs develop and become implemented.

17. Recommendations (based on the review):

    a. Program evaluation in vocational education needs to be a continuous effort... Most vocational education programs are continuous; therefore, it is logical that the evaluation efforts should be continuous;

    b. There is much need for evaluations to be systematic;

    c. More emphasis should be placed on cost analysis studies;

    d. All institutions and agencies involved in personnel development should assess whether they are sufficiently emphasizing the preparation of personnel. Program evaluation has not received sufficient emphases at the preservice or inservice vocational education personnel development programs;

    e. Development of specific and measurable program objectives;

    f. There is need for research in all areas of methodology. A review of followup studies reveals lack of consistency in use of acceptable procedures to conduct studies;

    g. More people should be involved in evaluations;

    h. Systematic and comprehensive information systems need to be developed for collecting information about vocational education; and

    i. There is a lack of a concentrated, systematic research and development. (Theoretical/Practical bases of evaluating vocational education).

Ball, S. & Anderson, S. B. Practices in program evaluation: a survey and some case studies. Princeton, N. J. Educational Testing Services, 1975. (ERIC Document Reproduction Service No. ED11 06)

Branch, R. K. Evaluation system model for the basic function of vocational education in California: a computer based evaluation system for vocational education. Sacramento: County Department of Education, 1972. (ERIC Document Reproduction Service No. ED075 667)

Denton, W. T. Program evaluation in vocational and technical education. Columbus, Ohio: Ohio State University, 1973 (ERIC Document Reproduction Service No. ED087 899)

Finch, C. R. & Bjorkquist, D. C. Review and critique of context and input measures in evaluation, 1975. (ERIC Document Reproduction Service No. ED118 808)

Guba, E. & Stufflebeam, D. Evaluation: the process of stimulating, aiding and abetting insightful action. Bloomington: Indiana University, 1970.

McKinney, F.: Manneback, A. J. & Neel, C. O. Central Kentucky vocational education evaluation project. Frankfort, Kentucky: Kentucky Department of Education, 1972.

Starr, H. & Dieffenderfer, L. A. A system for statewide evaluation of vocational education. COlumbus, Ohio: Ohio State University, 1972 (ERIC Document Reproduction Service No. ED066 561)

Stevenson, W. W. & Ward, W. G. Conducting evaluation within a state: information for state leaders. Columbus, Ohio: Ohio State University, 1973 (ERIC Document Reproduction Service No. ED080 657)

Stromsdorfer, E. W. Review and synthesis of cost-effectiveness studies of vocational and technical education. Columbus, Ohio: Ohio State University, 1972 (ERIC Document Reproduction Service No. ED 066 554)

Weiner, A. & Marson, A. A. Cost benefits studies. (ERIC Document Reproduction Service No. 122 899)

- Also see Webb, R. et. al. (ERIC Document Reproduction Service No. ED114 637).

Morphet, E. L. & Ryan, C. O. Designing education for the future no. 3: planning and effecting needed changes in education. New York: Citation Press, 1967.

Designing education for the future was an eight-state project which involved a study of society as it may exist in 1980 in an attempt to identify needed changes in education and to examine the planning and change processes whereby these improvements may be brought about. This is Volume 3 of a three-volume series of publications associated with the project financed by funds under the Elementary and Secondary Education Act of 1965, and the eight participating states (e.g., Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming). All three volumes include documentations of presentations made at three 3-day conferences during 1966-1967. Volumes 1 and 2 are entitled Prospective changes in society by 1980 and Implications for education of prospective changes in society, respectively. Leading authorities were selected to prepare the papers included in each of the three publications.

"In designing the project, the policy board adopted the procedure of asking outstanding scholars from various disciplines to develop papers representing their best thinking regarding projections for the future. In addition, educators were asked to relate these projects to education and to draw implications for the future of education. Finally, other individuals were asked to analyze the planning and change processes and how society should go about making changes in education to meet the needs of the future. Each participating state appointed a project coordinator, an advisory committee and study committees to carry out related activities of the state and to help assure the effective planning and conducting of the project" (p. ix).

National Academy of Sciences, Committee on Vocational Evaluation Research and Development. Assessing vocational education research and development. Washington, D.C.: National Academy of Sciences, 1976.

The Committee found that $250 million spent by USOE on vocational education research and development during the last ten years has not had documented, widespread impact. The data do not indicate that vocational education research and development findings and products have an influence on the knowledge, skills, or employability of large numbers of students. Impact measures have often been subjective and difficult to validate and have failed to measure the long-term effects of research and development. The Commissioner of Education should ensure that USOE develop a comprehensive plan for evaluation of vocational education, research and development. Evaluation criteria should be developed. Studies should include measures of students' job satisfaction, continuation of education, job mobility and wages, employers' satisfaction, and savings in training costs.

Criterion measures used in current evaluations inadequately reflect program success. Evaluations have measured success in terms of initial job placement, which is determined by many factors, including the availability of jobs, the social status, personality, and intellect of the student and chance. Existing criteria could be supplemented with new measures of other aspects of program success, e.g., job satisfaction, job turnover rates, the socioeconomic mix of students, and changes in student self-perceptions.

Evaluations of demonstration projects have been problematic partly due to lack of criteria for measuring success. Follow-up or longitudinal data on graduates have not been collected. Although some research and development products have been disseminated and used, we do not know what proportion of the total they are or what proportion is either reasonable or desirable. We do not know how well these products fit the needs of potential or actual users.

Project Baseline reported on several aspects of vocational education evaluation. The project classified impact according to the following scale:

1. Implementation in many states;
2. Extensive implementation within a state (majority of schools);
3. Some implementation in several areas of a state;
4. Implementation within a district; and
5. Minimal or no implementation.

A similar classification for state-administered programs was:

1. Wide implementation or extensive use within a state;
2. Implementation in the original site and in a few additional sites;
3. Implementation only in the original site;
4. Use of results as a basis for additional work; and
5. Little or no known current use.

Interview questions were utilized to obtain information in extent of dissemination and use. In reviewing individual project evaluations, the following measures of impact were found to be used: gains in achievement of vocational skills; gains in career awareness; and attitudes toward work.

National University Extension Association. ACT-NUEA innovative awards in continuing education, 1978-1979 (sponsored by Americal College Testing Program and the National University Extension Association). Washington, D.C.: National University Extension Association, 1978.

Each year the ACT-NUEA make awards to the most innovative programs in continuing education for the year. Categories of awards are:

1. Instructional programs, credit or non-credit, in adult and continuing education that meet the learning needs of various clientele groups and which have demonstrated their workability and a timely, relevant and different approach to problems or issues.

2. Student services and counseling programs for adult and part-time students which have demonstrated their workability and a timely, relevant and different approach to problems or issues.

3. Changes in administrative organization or staff training of continuing education units which have demonstrated their workability and a timely, relevant and different approach to problems or issues.

4. An open category for entries that might fit a combination of the above or none of them, but which have demonstrated their workability and a timely, relevant and different approach to problems or issues.

Guidelines for program eligibility include: ideas that are workable, "catch on," and have an impact on the intended audience, and programs that have a broad impact (i.e., in terms of numbers of persons reached or geographic area covered).

New Educational Directions, Inc. What does career education do for kids? (a synthesis of 1975-1976 evaluation results). Crawfordsville, Indiana: New Educational Directions, Inc., June 1977 (a).

This is a report of a project entitled "Synthesizing and Communicating Career Education" which was a study of 45 programs K-12 funded during 1975-1976. The study looked at 500 student outcomes. The presentation of the evaluation results in this

report is organized around ten learner outcome goals for career education. The original nine USOE outcomes were reworded and expanded. The ten new outcomes are: (1) basic skills; (2) work habits/attitudes toward school; (3) work values/desire to work; (4) decision-making, job-hunting, and job-getting skills; (5) job-specific skills and interpersonal skills; (6) self-understanding and career knowledge; (7) learning as a lifelong process; (8) job placement; (9) use of leisure time, and (10) overcoming constraints to seek alternatives.

New Educational Directions, Inc. Recommendations for the implementation and management of career education projects. Crawfordsville, Indiana: New Educational Directions, Inc., May 1977 (b).

This report is a compilation of recommendations appearing in the final performance and evaluation reports of 81 career education programs funded by the U.S. Office of Education during 1976. Thirty-two received funding for three years pursuant to Section 104(c), Part D of PL 90-576 and 49 were funded for one year through the Office of Career Education under Section 406, Title IV of PL 93-380. Seven hundred and five recommendations were identified in the 81 reports.

These recommendations underwent four reviews. The report includes 230 recommendations which were not project-specific and which could be used to determine trends in each of the 19 general categories. Recommendations were made on the following 19 categories: program planning, project staffing, project management, implementation strategies, pre-service training, inservice training, consultants, demonstration sites, advisory committees, community, special needs groups, multi-site projects, coordination/participation, materials development, placement, dissemination, evaluation and research, funding, and USOE.

Of particular relevance to program adoption, dissemination, institutionalization and/or evaluation were the following suggestions:

1. Some of the projects reviewed utilized a demonstration site approach whereby the sites encouraged visits by individuals or teams interested in observing an exemplary career education program. It was noted, however, that having career education demonstration sites available is not enough. Extensive utilization of those sites is unlikely to occur without an extensive ongoing publicity campaign. It was also suggested that aggressive followup will be desirable for demonstration site visitors if the program included providing visitors with inservice and consultant services after visits.

2. A number of the reports reviewed represented projects serving sites located in either a large geographic region or districts scattered

around a state. In general, it was recommended that the number of and distance between sites served by a single project be limited to a level where the transportation of staff and materials is easily managed to minimize logistical problems in the delivery of services. In addition, itwas suggested that the number of sites be limited to the number in which project staff can anticipate a fair probability of implementation (and possible institutionalization).

3. Greater emphasis should be placed on production and incorporation of curriculum materials as a planned process to ensure infusing caree education concepts and activities into the regular curriculum structure; also materials purchased and developed in the future should be analyzed with some kind of qualitative measures.

4. It was suggested that at least two years be considered the length of time needed to establish, promote and implement an effective job development, placement and followup component. It was further recommended that the development of a placement component requires unique skills and responsibility for program development should be given to an individual with demonstrated skills and experience in placement services. Employment opportunities should be identified prior to the initiation of a placement service. Furthermore, it was recommended that a viable feedback system be developed to insure that post-secondary options are updated to make career placements more effective in terms of both present and projected occupational needs and demands.

5. It was recommended that projects should establish realistic and assessable process and outcome objectives. In addition, a recurring recommendation focused on the desirability of evaluation being a continuous and ongoing aspect of any project. The value of both process and outcome evaluation as an aid to management decision-making also was noted frequently.

   It was recommended that if an external evaluator is to be used, early involvement during the project's formative stages is very desirable if maximum use is to be made of this individual or agency. An evalu tion design which is directly related to the project's stated objectives should be established early and baseline data should be obtained prior to, or at the latest concurrent with, initiating the delivery of services. Whether the evaluation is implemented by the project itself or through an external evaluator, the importance of including all aspects of a project encompassing things such as staffing and finances was emphasized.

   Finally, the desirability of establishing longitudinal studies to assess the impact of career education efforts in a meaningful way was repeatedly noted and the longitudinal, cummulative nature of career education itself was offered as the rationale for such studies. The recommended duration for longitudinal studies in career education ranged from three to thirteen years.

6. Although many of the projects reviewed had objectives which focused on dissemination, the recommendations related to it tended to be that selected project components should be described with

sufficient precision and detail so that they may be readily transported to other settings, or a more general, continued efforts should be made to have a greater cross-fertilization of career education activities... with expansion into the non-participating school districts.

Either by statement or implication it was not uncommon to find the reminder that a project funded for the purpose of development or demonstration should keep this clearly in mind. Responsibilities to the funding agent and the national career education movement are easily overlooked by an enthusiastic staff highly involved in serving the local community.

7. In general, whatever the funded life of a project, the project tended to feel it was not long enough. One-year projects recommended up to three years duration pointing to the first-year time consumed in the general organization of a new project as a rationale. Three-year projects indicate that fourth and fifth years should be avalialable for refining a program developed during the first three years and to implement an outreach phase as is sometimes done with programs funded by the Bureau for the Education of the Handicapped. Time should be allowed,...for change installation -- any proposed change worthy of funding to install (should) be given adequate time not only for installation, but for follow-through to take place.

8. It was also recommended that the USOE provide to funded projects, a report on what seems to be areas of strengths and weaknesses of approved proposals before or during the early stages of project development. It was indicated that such feedback should address all aspects of a project including budget, operations, evaluation activities, and staffing plans.

New York State Education Department. Planning guide ESEA IV, Part C: education innovation and support 1975-76. Albany, N.Y.: New York State Education Dept., Division of ESC General Program Planning, 1975.

This planning guide is intended to provide all eligible education agencies in New York State with the information necessary to compete for federal grants under the Elementary Secondary Education Act, Title IV, part C. Under Title IV, part C, Federal funds will be granted to certain local education agencies for the development, validation, demonstration, and replication of various innovative school programs. The guide is organized in four major sections. Chapter 1 provides an overview of Title IV, part C and its role in meeting the educational needs and goals of New York State. Chapter 2 examines grant criteria and evaluation procedure under Title IV, part C. Chapter 3 discusses general application information and procedures. Chapter 4 provides detailed information on the format and procedures to be used in applying for Title IV, part C funds; a sample of the official application form for New York Education agencies is included as well.

Chapter 2

Chapter 2 is divided into two parts, part one describes the grant acceptance criteria, while part two describes evaluation criteria.

1. Grant Acceptance

Included under grant criteria are the following: (1) criteria for screening (due date, submission procedures as outlined in RFP); (2) general criteria for all projects and grant types (e.g., describe budget, project personnel, inputs/resources, target groups, needs statement, etc.); and (3) specific criteria for each grant type (i.e., developer grants, validation, demonstration and replication). The specific proposal acceptance criteria for demonstration grants included the following: (1) evidence that the project is designed to demonstrate solutions to identified educational needs and well increase the educational opportunities of children; (2) the proposed solution is capable of solving educational problems and is cost-effective (cost per pupil is reasonable when compared to similar programs); (3) there is an awareness of supportive evidence (other programs, research, views of known experts) and the innovation is not merely an "add on" so that the programs/practices to be changed are clearly deliniated; (4) the program is new to the district; (5) there is a relationship of the proposed program to the educational thrusts/priorities set by the state in the RFP; (6) there is potential for the program's wide acceptance; (7) the cost of program adoption after its development is reasonable; and (8) the developer agrees to serve as a demonstration district if the innovation is validated. The specific acceptance criteria for validation grants were the following: (1) documentation of program operation-effectiveness and success; (2) adequate information regarding start-up, management and operational cost per learner and per the total program; (3) evidence of the ongoing program's exportability to similar school districts; (4) program to be validated reflects state priorities; and (5) applicant agrees to serve as demonstrator, if successfully validated. Specifications regarding acceptance of demonstration grants proposals included proposing: (1) a comprehensive means of meeting a critical local and and statewide educational need common to all or several school districts; (2) to give information regarding the availability of program/policy components necessary for program implementation -- materials, products, training, needs addressed, target group characteristics, staffing, institutional setting, parent/community involvement, objectives, activities, evaluation design and cost; (3) a means for assuring practical adoption/adaption relative to instructional methodology, materials, equipment, facilities, management scheduling and assessment; and (4) already available statistically significant evidence that in any previous implementation of the approach with comparison groups, the

approach demonstrated a high degree of success in achieving its major objectives. Replication grants had to adhere to the six following criteria: (1) evidence that the program was formally validated by the state; (2) requested funds are for startup and evaluation not operational costs; (3) evidence that the applicant agency has a high concentration of students with severe deficiencies in the area of the educational practices to be adapted/adopted; (4) a workable plan for adapting/adopting the exemplary program; and (5) a cohesive plan to initiate evaluation on the effect, implementation and design of the exemplary program, meeting the standards of the validation grant.

2. Evaluation

The purpose of Title IV, part C funds is to develop, test and market successful practices that can be adopted/adapted by similar school districts. The purpose of evaluation is to assess the degree of change (or lack of it) as a result of the project. The evaluation strategy and implementation must: (1) address and assess program objectives in terms of the criteria which describes to what degree they should be met; (2) select and/or develop evaluation instruments prior to program implementation; (3) provide for the collection of baseline data; (4) compare project participants before, during and after participation in light of program's objectives and criteria; (5) provide feedback to project managers; (6) provide a timeline of evaluation activities; (7) ensure the necessary data and records are maintained and are available.

Ohio State University. Innovation's evaluation guide: an evaluation tool for innovation consumers in vocational technical education. Columbus, Ohio: Ohio State University, Center for Vocational and Technical Education, 1972.

The guide lists the following evaluation criteria: (1) individual pupil growth (rate of learning, number and type of learning experiences or skills, affect/attitudes, self-concept, social interaction skills); (2) program operations (cost benefit analysis, innovation vs. alternative programs, goal/objective - attainment); (3) society and the economy (increased opportunities for job entry skills; program activities related to job promotion, job statisfaction, wages, occupational mobility and lowered school drop-out rates, awareness of institutions, laws, culture and social problems, benefits to school and community such as in school-community relationships and the public image of the school; (4) credibility (prior testing evaluation and validation); (5) assurance contract (soundness of innovation, administrator and assurance of services, T/TA provided by sponsoring organization); (6) costs (costs per unit over time, possibility of saving, method of funding,

and sources of funding, procedures needed for getting funding including limitations); (7) time considerations (amount of startup time, deadlines placed on activities prior to operating date, time needed for obtaining needed resources, materials and equipment, time needed for teacher training, time needed for planning each week, time required in daily preparations, classroom activities and meetings, and time needed at particular periods during the calendar or academic year); (8) installation considerations (barriers from community school personnel or students; extent of involvement required; how many staff members, students, schedules, classrooms, laboratories or schools are involved; requirements concerning the extent of installation; possibility for trial-testing by the adopting institution before complete installation; necessary changes required at the state and local level such as field testing or certification; (8) organizational change; (10) personnel needs; (11) space requirements (equipment needed).

Packard, J. S. & Jovick, T. D. Predicting success in innovation. Eugene, Oregon: Oregon University, Center for Educational Policy and Management, March 1978.

This document presents results of a prediction investigation into factors that might account for variations in the success of attempts at educational innovations. Four stages of innovation (adoption, planning, implementation and institutionalization) are isolated and described, and attention paid by this investigation to the innovating organization is detailed. The occurrence of only one innovation (team teaching) was investivated in all elementary education programs of a single district where half were experimental and half were control schools. The design used in the study involved gathering data at all schools prior to setting up the innovation (pretest), twice during the implementation stage and twice during the institutionalization stage, all at six months intervals. Therefore, the design involved collecting data across time from the experimental and control schools prior to, during and after implementation of the innovation.

At both the experimental and control schools, the outcome measures of the team teaching innovation involved teacher behavior data as described by teachers on questionnaires. The specific criteria for successful implementation of team teaching at any point in the program's stages were instructional interdependence (measured by the number of paired teachers for team teaching) and collegial decision-making (measured by the percent of discussions made by the team rather than individually).

Various through-time changes and other potential predictors of these variables are discussed. Predictors of the outcome variables were generally of two types "fixed" and "strategic." Fixed variables "which vary from school to school, which are

not directly measured but which affect success" included: school size, age/tenure of administrative and teaching personnel, leadership style of principals, teacher turn-over rate, staff backgrounds, architecture and physical makeup of school building facilities, number and type of teachers, number of volunteers and specialists, staff experience, staff teaching responsibilities, school and community structure and power structure of the school. The data sources for these variables were questionnaires, school records and specially created measures (reported elsewhere). Strategic variables were a "set of special events undertaken during the planning (pre-test) phase. These have the apparent functions of preparing the school and faculty for the installation of the innovation" (p. 12). Any experiences (e.g., teacher participation in program planning, special training, contact with consultants, attendance at workshops) which can give staff a sense of "mastery of the innovation" was a strategic variable. The data sources for the strategic variables included a questionnaire administered during the pre-test phase/teacher-orientation stage to teachers in the experimental and control schools (after teacher training experiences had occurred). The teachers were asked to describe their thoughts/feelings regarding the likelihood of successful program implementation and were also asked to describe what type of training they received.

The data were analyzed using cross-wave auto-correlations, and correlations of residual gains in outcomes to fixed strategic variables. Production was found possible using both strategic and fixed variables through the end of the first year (implementation stage) but not beyond to the institutionalization stage. The author noted that in schools where the innovation was first expressed through outcome gains in core courses (i.e., reading and language arts) and where the team teaching appeared to be more a school-wide phenomemon rather than a teacher-pair phenomenon, the innovation thrived over the long term. He concluded that "if an innovation becomes attached to the core values of a particular occupational subculture, it may thrive. If, on the other hand, an innovation is expressed in events somewhat removed from the core values of an occupational subculture, it may suffer from neglect" (p. 23).

Pincus, J. Incentives for innovation in the public schools. Review of Educational Research, 1974, 44(1), 113-144.

This paper reviewed literature in the area of public school adoption and implementation of innovation and sets out some propositions about the relationship between school structure and implementation and/or adoption. The propositions may have certain systematic implications for educational R&D policy as well as for such broader questions as how to implement planned change in bureaucracies. The general thesis of this four-part paper is that the market structure of the public school industry has a major effect on schools' decisions to adopt innovations

and the bureauctatic structure and incentives of schools shape in specific ways the transition from adopting innovations to implementing them" (p. 113).

Characteristics of the public educational system (from an economist's viewpoint) include the following: (1) the public schools are a de facto local monopoly which is different from many other local public utilities; (2) unlike most public utilities, the aims of schooling are unclear, or at least there is no concensus about priorities; (3) the technology of schooling is unclear; (4) school districts may change very little any incentive to be economically "competitive" to increase their registration at the expense of other districts; and (5) although the schools are educational institutions, they apparently provide only a small part of the students' educational resources. These five characteristics make it difficult to gauge the effects of schooling on people's lives and learning. Like other self-perpetuating bureaucracies, the public school system cannot select their clients and the clients must accept its services regardless of the quality.

The definition of a successful innovation in a competitive economic system is one that is adopted and one that also works toward economic and social improvement as marked by the decisions of consumers and procedures. Given schools' characteristics, one cannot expect their institutional "market-place" to produce the same results as the marketplace of competitive industry. Assuming the definition of educational innovation is looser, one might compare the responses to be expected from public schools which innovate with those one might expect from a competitive private firm. These include the following six characteristics:

1. Be more likely than the competitive firm to adopt cost-raising innovations since there is no marketplace to test the value of the innovation in relationship to its cost.

2. Be less likely than the competitive firm to adopt cost-reducing innovations.

3. Be less likely than the competitive firm to adopt innovations that significantly change the resource mix (e.g., higher ratio of teacher aides to teachers), because any consequent productivity increases are not necessarily matched by greater "profits" to the district, and because any replacement of labor by capital may threaten the guild structure of the schools.

4. Be more likely than the competitive firm to adopt new instructional processes or new wrinkles in administrative management that do not significantly change institutional structure, because such innovations help to satisfy the demands of the public, of state and federal governments, and of teachers and principals themselves for change and progress without exacting heavy costs to the district in the form of organizational stress.

5. Be less likely than the competitive firm to adopt innovations that change the accustomed authority roles and established ways of doing business, because changes in these relations represent the the heaviest kind of real cost to bureaucracies.

6. Be equally unwilling as competitive firms to face large-scale encroachments on protected markets (voucher systems, metropolitan-areawide open enrollment), although for somewhat different reasons.

From the view point of a market economy, it might be argued that many of the innovations adopted by the schools are not innovations at all, but only fads, since there is little or no serious attempt to validate them in terms of productivity or effectiveness criteria, nor is there any market-like mechanism which automatically separates wheat from chaff. The validation process for educational innovation is ultimately measured by bureaucratic and social acceptability -- criteria that are far more tenuous than those of a competitive market, but no less important for the actors in the bureaucratic marketplace.

In spite of this, three factors seem favorable to innovation in the schools:

1. Bureaucratic Safety - When the innovation is perceived as favorable with respect to the current status and organization of the bureaucracy (because in a self-perpetuating non-market system, these bureaucratic values become socialized and tend to dominate other criteria; or in other words, the bureaucratic costs are the real costs of the system).

2. Response to External Pressure - When external pressures for innovation are perceived as irresistible (because school systems cannot be entirely unresponsive to external pressures and financial constraints).

3. Approval of Peer Elites - When key figures in the Bureaucracy and their colleagues in other educational bureaucracies can agree about the acceptability of the innovation (because in the absence of clearly defined output criteria, consensus among the elite is often the primary decision-making criterion).

These three factors can be considered as reflections of institutions, markets and consequent behavior incentives facing the public schools. Given these characteristics, and the market structure of the public school "industry," schools tend voluntarily to adopt innovations which promote the schools' self-image by demonstrating that the schools are:

- "Up-to-date"- introducing modern physical plant, new curricula not requiring changes in bureaucratic organization or staff rules, reduction of class size, use of teacher aides, team teaching.

- "Efficient" - adoption of electronic data processing, new budgeting and accounting systems, portable classrooms.

- "Professional" - adoption of curricula that are espoused by the educational leadership, hiring well-trained teachers, subsidizing

inservice training and workshops; consulting with faculty of leading schools of education.

- "Responsive" - established formalized links to parents, using blue-ribbon advisory committees to submit reports on policy issues, establishing counseling and guidance functions, establishing special programs for handicapped, gifted, slow learners, etc., providing vocational programs that respond to needs of local industry, offering a variety of adult extension courses.

Large scale carefully planned R&D efforts are in curriculum change likely to be more effective in gaining adoption than more modest efforts. Such efforts should include collaboration with practitioners and praise from professional education groups to encourage adoption. Adoption can also be catalyzed by pressure subsidy, or other incentives from external jurisdictions or interest groups. Pincus recommends a rational state and federal R&D policy, to the extent that it aims at encouraging innovations that schools would normally be reluctant to adopt, should presumably devote most of its funds to innovations that are uncongenial to the schools with payments based on evidence that reforms actually are undertaken. On the other hand, there are problems when innovations are widely accepted.

Some attributes of federal aid act to discourage incorporation of innovations into school systems.

- There is a tendency to subsidize educational research and development without particular reference to the effects of the developments on various outcomes of schooling.

- There is a tendency to ignore in setting policy the evidence of evaluation reports on innovative programs, allowing districts to introduce or perpetuate pet projects without regard to the alleged aims of innovation.

- There are too frequent changes in program priorities and too short a life for educational experiments. Many federally funded innovative programs are based on trials of one to three years, with two major consequent disadvantages: (1) not from effects of the frictions arising from the effort to implement; (2) because the the districts know that the programs cannot get a fair test in such short time, they are unlikely to take much interest in the programs as exemplars.

- A related difficulty is the tendency of federal and state agencies to view their contributions as seed money to be replaced by district funds if the program is a success. But school districts know that the typical cost of such programs ($100-$500 or more per student per year) is beyond their ability to finance.

- The school districts do not perceive the federal government as demonstrating clear or consistent policies toward innovation. There is no clear long-term benefit or penalty to a district if it adopts or fails to adopt one set of innovations in preference

to another. This tends to reduce the schools' respect for federal policies toward innovation, and to breed a certain cynicism as to the merits of serious efforts at innovation. Furthermore, since federal aid fails to systematically support hard alternatives and to scamp easy ones, it in effect encourages a strategy of "grantsmanship."

- The schools interpret these pecularities of federal aid policies as meaning that federal aid is unreliable -- "soft money" that will disappear as suddenly as it arrived. Therefore, school districts characteristically refuse to use federal money as the basis for any substantial long-run changes in ways of doing business.

- Furthermore, the federal government's support of innovation is relatively small scale compared to other programs such as impact aid and compensatory education. Therefore, funds for innovation, although helpful to a school district on the hunt for federal largesse, are a second order quest.

The most common complaint of R&D organizations about adoptions is that the innovations are not actually implemented as prescribed. These are several reasons for failure to implement innovations effectively:

- R&D organizations frequently do not provide sufficient implementation guidance, in light of the variety of school situations where adoption is tried.

- Teachers, administrators, and students may not accept the obligation to change their behavior patterns in ways consistent with implementation.

- The schools may simply not know how to implement the innovation.

- It may often be the case that school personnel will be more interested in the language of innovation than in the complexities of translating that language into innovative practice.

A wise R&D strategy to increase adoption might include trying out systematic innovation and assessing their consequences. Adopting this strategy means finding ways to do three things:

- Adopt R&D policies that appeal more effectively to the existing set of bureaucratic incentives; and also policies that attempt to modify those incentives.

- Adopt policies that permit the public, acting through a variety of institutional means, to assess more accurately what the schools are doing and how well they are performing.

- Introduce changes in the market structure of the schools that will facilitate innovation.

This suggests five broad emphases for R&D policy in encouraging adoption of innovation: (1) large-scale experimentation;

(2) collaboration between R&D agencies and educational leadership networks; (3) case studies of successful and unsuccessful innovation; (4) research that will improve the R&D community's understanding of the existing pattern of incentives in the schools; and (5) trying out methods of restructuring system incentives. Most of these approaches have been tried to greater or lesser degrees.

Two kinds of new large-scale natural or planned experiments are needed. The first kind of experiment involves finding out more about the effects of new methods on educational outcomes, given the current education institutional structure while the second kind of experiment is more deliberately aimed at modifying the current structure of institutional or market incentives. Both efforts should focus on its effectiveness of meeting stated goals and also on the system wide effects of the experiment (i.e., the institutional response of the schools to the new stimulus).

Policy implications appear evident regarding collaboration between R&D agencies and educational leadership networks.

1. Educational R&D organizations should be interdisciplinary and problem-oriented rather than disciplinary and methodology-oriented to increase the adoption of R&D products in the schools.

2. R&D organizations should work more closely with principals, district administrators, and teacher representatives during the development period.

3. R&D organizations should conduct regular seminars, workshops, and institutes for school district and state education agency staff, designed to communicate both R&D results and schoolmen's perceptions of appropriate priorities, implementation problems, and technical assistance requirements.

4. It is important for R&D agencies to understand the nature of regional and national influence networks, and to identify potential innovators. In the public schools, as elsewhere, there are organizations and individuals who are more disposed to innovate and who feel less threatened than others by the prospects of change.

5. Most important in the transition from innovation to implementation is the need for R&D personnel to work closely with school staff during the implementation period.

For major innovations that proponents of school reform are seeking, it may often be a matter of years, not months, to build up the kind of orientation and mutual understanding that will be required and through a process of successive approximation to create new institutional structures and values. It will in effect require R&D institutions to turn much more to a clinical model of change (one which adapts general findings or processes to the specific circumstances of the client) and away

from the engineering model, which offers a standardized product to the clients at large.

Regarding restructuring system incentives, a theme of this paper is that the schools, as a peculiar form of regulated public utility, have a different set of incentives to innovate than do competitive firms. It is undesirable to take the private market model as a general exemplar for school district behavior (most people would be reluctant to allow only those who can afford schooling to obtain it), but it seems well worthwhile to experiment with changing the incentive system of the schools.

Experimentation with restructuring incentives should take four forms -- changes in market structure, changes in locus of control (i.e., either centralize or decentralize school systems), and changes in individual incentives (e.g., de-emphasize teacher certification and unified salary schedules, and clearer standards for accountability and better information standards).

Post, J. O. Final report - project no. 502A15002D, grant no. G310-75-0010, occupational competence access project. Hanover, Massachusetts: Institute for Career Research, July 1978.

This report covers the three-year State of Massachusetts' Vocational Education Part D Demonstration Project entitled the Occupational Competence Access Project. The goals of the project were to:

1. Facilitate student access to occupational opportunities through the provision of a guidance system which incorporates student capabilities.

2. Facilitate student access to occupational opportunities through the provision of industrially validated exploratory programs in occupational preapration; and

3. Facilitate student access to occupational employment and training opportunities through the development of a comprehensive articulation between curriculum levels, curriculum areas and the world of work.

Participating in the program were the school, student and staff in the Lynn and King Phillip regional school systems. These schools represented an urban school and a suburban comprehensive regional school district.

Evaluation

The evaluation of the Occupational Competence Access Project (OCAP) was conducted at both summative and formative levels using samples of students at the Lynn and King Phillip high schools. In the first year of the project, three assessment

devices were used with the ninth through twelfth grade students. These included: (1) Crites Career Maturity Inventory (CMI); (2) Deciding -- a college entrance examination board device; and (3) Massachusetts Occupational Knowledge Assessment 1974 Test (OKAT), a criterion-referenced test being used by the Massachusetts Department of Education. For the second year's testing of students, these tests were used in shortened and modified form to fit the occupational needs of the area students and to shorten the time needed for test administration. These tests were used to evaluate students' occupational awareness, career maturity and decision-making abilities.

Impact which the project may have had on the schools were also determined by way of a survey of school staff on site visits and a review of school records and school policy. Specifically investigated were possible effects of OCAP on local professional staff attitudes accomplishments achieved within local educational systems during September 1975 through December 1978. Discussed were staff turnover and startup time, occupational counselor/student ratios, infusion of career education in traditional classroom subjects, staff qualifications and resources made available for the project. These are discussed for each program school and evaluated subjectively by the team of evaluators.

Formative inputs were collected on an ongoing basis throughout the project via critical incident reports (e.g., evaluations of teacher-training workshops and of training and technical assistance) and several focused substudies conducted by the evaluators. These inputs assisted the project management in making mid-course corrections and managing the accomplishments under the grant.

One problem encountered by the project is directly related to possible impacts from this program. The project staff and evaluators worked so long on improving documentation and instrumentation throughout the project that they were left with fragmented assessment of student gain and no benefit of a control group. If the evaluation design had been fixed in the beginning of the three-year project with adequate pre-testing in September 1974, post-testing in April or May of 1978 could have been more reliable. Some gains were recorded in years two and three but they were too disjointed to render implications attributable to OCAP only.

Dissemination

Dissemination generally involved the development/distribution of materials and the provision of training and technical assistance (T/TA). The report describes materials and resources made available to project school staff (teachers, counselors administrators) by OCAP staff and also describes teacher-developed materials for which OCAP provided T/TA. The report also lists the names of in-state. out-of-state and outside

U.S. agencies provided with materials or T/TA. The report lists the names, places and dates of conferences/workshops where OCAP made presentations. The names of task forces in which OCAP participated are likewise given. A pamphlet describing the OCAP program was sent, unsolicited to: (1) career education coordinators in all senior high schools in Massachusetts; (2) regional education centers in New England, New York and New Jersey and to (3) a sample of curriculum directors and supervisors of instruction in Massachusetts and New England.

Project Baseline. Northern Arizona University (1970-1974)

Project Baseline is a clearinghouse for statistics on vocational education. The Appropriations Committee of Congress asked for it and directed that specific funds be used to carry it out. The National Advisory Council on Vocational Education was asked to do the job. The U.S. Office of Education has provided the funds and contracted with Northern Arizona University to provide the staff.

As stated in the November 1972 report (p. 3):

> In addition to all of the information that is available in the States about their vocational education programs, Project Baseline attempts to fill in the complete picture of manpower training in the United States. From the U.S. Department of Labor, which administers the MDTA and EOA funds for manpower training, comes all of the data available about these trainees and how they fit into the total picture. From the National Center for Educational Statistics in the U.S. Office of Education and from State regulatory and licensing agencies comes information about private training programs. The National Center for Educational Statistics also provides valuable information from national surveys on secondary and post-secondary students, both academic and vocational. And in almost every state there is a Research Coordinating Unit established originally by the U.S. Office of Education to develop research in vocational programs. These are now operating within State Departments of Education and universities, and they are vertiable gold mines of information about what is going on in their own States throughout the Nation.

Project Baseline draws on all of the sources for the annual statistical reports on vocational education. The first data were compiled for the school year 1970-1971. Each year's data are compared to the preceding year in an effort to identify trends.

Most reports resulting from Project Baseline are entitled Learning a Living Across the Nation and are by Arthur M. Lee, Project Director. However, several reports have been written by other authors. In an attempt to keep all reports relating to Project Baseline together, they are discussed under the project title rather than each individual author's name.

Arthur M. Lee, Project Director, discusses the impact of vocational education research and demonstration in his December 1975 report entitled Learning a Living Across the Nation, Volume IV. Success and impact were defined in terms of continuation and dissemination.

Although many projects were continued, they were not necessarily continued unchanged or at the same level of effort. The process of continual adaptation makes it difficult to measure the full impact of a given amount of money which may have been allocated to a particular exemplary project.

The following categories were used for assessing the impact of federally administered exemplary projects:

1. Implemented in many states in addition to non-district.
2. Extensive implementation within state in addition to own district.
3. Some implementation in several areas of state in addition to own district.
4. Implementation within district.
5. Minimal or no implementation.
6. Funding level continued or increased under state and local funds following federal termination.
7. Funding level continued at reduced level under state and local funds following federal termination.
8. Funding level continued at reduced level under state and local funds following federal termination.

Categories for state-administered exemplary (Part D) projects were:

1. Widely implemented or used.
2. Implemented in original site and in a few additional sites.
3. Implemented in original site only.
4. Information for project being used.
5. Little or no known current impact.

A stratified random sample of 725 Part D projects listed in the USOE FY 1971-1972 publication was taken using the following major subdivisions: cooperation between education and manpower, post-secondary education, programs directed toward out-of-school youth, and programs for young people in school (secondary or younger). Each of these subdivisions was further categorized into five areas: counseling and placement, career

awareness and exploration (career development), work experience, cooperative education, and vocational education.

Project Baseline's criteria of impact were based on the numbers of schools, school districts, and states known to have adopted the results, or on the extent to which the states used the information.

The report addresses the question, "Why are some state administered research and demonstration projects more successful than others?" (p. 78) The most noticeable characteristic of successful projects is the enthusiasm and commitment of the project directors. Another important element is the support of school administrators for project goals. The report states that "this was particularly evident in projects designed to solve problems of concern to school administrators and in projects establishing programs desired by local school districts" (p. 78).

The programs that had the most impact were those directed toward establishment of state policy while those with the least were for evaluation of instructional programs at the local level. The projects with most impact were those sponsored by state departments of vocational education. Secondary and post-secondary vocational schools sponsored exemplary projects that were implemented in several additional schools. Neither level of funding nor number of years of funding appeared to be related to impact (p. 79).

To the question "Are there any common elements in the more successful federally administered demonstration projects" (p. 79), two were clearly evident: project and third-party evaluation design; and an emphasis on teacher training through workshops and inservice sessions.

Suggestions made by researchers and demonstration project directors to improve project success were: thorough planning, more lead time, an emphasis on professional personnel orientation and training, cooperation and support of the local school districts, and continuing or extended evaluation built into the project design. These are discussed in more detail in the report.

Difficulties most often encountered in federally administered Part D exemplary projects were: late funding, difficulty in enlisting wholehearted support of local administrators and teachers, lack of clearly defined goals and objectives, time constraints, and physical situations (e.g., inter-group tensions in urban areas).

Robert Miller, Ed.D, and La Rue W. Miller, M.A., present information on the national impact of the nine-year effort at improving vocational education in their report Impact of vocational education research at the federal and state levels.

October 25, 1974, as part of the Project Baseline effort. The authors identified two broad parameters of impact, the intended impact and the actual impact. It may be impossible to assess the actual effects of a project on the nation, state, city or individual citizen. "However, while determination of actual impact may sometimes prove infeasible, a good deal of useful information may be obtained by determining the intended impact, for intention clearly describes the mood of the policy makers within the educational system, of those who wrote project proposals, and of those who have approved and funded the projects" (p.24)

Part D state administered and federally administered exemplary projects were classified into two separate three dimensional matrices to be used as a taxonomy of intended impact.

In G. Law's report, Impact of Vocational Education and Manpower Training on the Labor Market (Project Baseline Supplemental Report), 1974, the issues in assessing the impact of vocational education on the labor market are discussed. Law points out the inconsistencies in definitions and data collection. Suggestions for improving information systems are made.

Rand. Federal programs supporting educational change. Santa Monica, California: Rand, 1974-1975.

The purpose of the Rand study was to identify what tends to promote changes and what does not in innovative educational programs. Four federal change agent programs were examined -- Elementary and Secondary Education Act Title III, Innovative Projects; Vocational Education Act, 1968 Amendments, Part D, Exemplary Programs; and the Right-To-Read Program. In particular the Rand report attempted to identify the nature, permanence, and extent of dissemination of innovations.

The results of the first year of the study (July 1973-July 1974) are reported in several volumes described below.

Volume I (R-1589/1, A Model of Educational Change) analyzes the current programs and proposes a conceptual model.

Volume II of the series (R-1589/2, Factors Affecting Change Agent Projects) contains the analysis of survey data collected from a national sample of 293 projects in 18 states during November and December 1973.

Volume III (R 1589/3, The Process of Change) summarizes the results of 29 case studies of change agent projects conducted by Rand staff members and consultants in 25 school districts during April and May 1974. These case studies were chosen from the original sample of 293 projects initially surveyed. Volume III also describes the role of state education agencies in choosing and disseminating change agent projects.

Four technical appendices to Volume III describe in detail the federal program management approach, state education agency participation, and case studies for each of the programs in the study: Title III, Appendix A; Reading, Appendix B; Bilingual Education, Appendix C: and Career Education, Appendix D. Appendix A should be of particular interest to researchers or practitioners concerned with the introduction of new approaches to classroom instruction.

Volume IV (R-1589/4, The Findings in Review) summarizes the findings of Volumes I, II, and III, and also synthesizes extensive data collected by Rand on federal-level program strategy and management for each of the change agent projects. Volume IV also includes a discussion of alternative federal strategies for promoting innovation.

Volume V (R-1589/5, Executive Summary) presents the study's methods and results for a general audience.

Subsequent research is designed to collect additional data on Titles III and VII of ESEA, with particular focus on projects whose federal funding has expired.

Volume I discusses implementation as the change process that occurs when an innovative project impinges upon an organization. By defining implementation in this manner, the focus of research is away from measuring compliance with goals. Instead, one should ask what changes actually occur as a result of the introduction of a new project, how and why they occur, and how they affect the operation of the organization. At one end the interest is in how programs affect education; at the other end how they affect students. Ideally, a theory of implementation would explain how federal policy works its way through the various levels and jurisdictions of the educational system down to the teacher in the classroom. Focus of research on implementation should be on the school district.

Despite autonomy of LEA's a common institutional framework links the various units of the elementary and secondary school system together into a highly stable system. The informal organization of the schools includes patterns of authority, communications, and interactions, configuration of goals, beliefs, and motivations of individuals in various standardized roles (superintendents, principals, or teachers); and the structure of personal incentives and constraints that motivate individual behavior and limit individual action. Comparative analysis of the process may reveal systematic patterns of implementation.

Volume II states that two levels of analysis are needed: school/classroom level and the school district level. At the classroom level, implementation is the primary concern; at the school district, expected continuation is appropriate for analysis.

For each level, the researchers took two steps: (1) selected and measured the most important dependent and independent

variables implied by the central research questions. Independent variables measure important project characteristics, aspects of institutional setting, and federal program inputs; the independent variables measure implementation outcomes and expected continuation; (2) the effects of an independent variable on the outcome measures were estimated using multiple regression techniques. This gave test of significance of variables as well as relative importance of the independent variables in explaining variations in project outcomes.

Dependent Variables

Classroom level perceived success of the project (percentage of goals achieved), the fidelity of implementation (the extent to which the project was implemented as laid out), the extent of teacher change, and the difficulty of implementation. At the district level, superintendents' answers were used to measure expected continuation of the project, in whole or in part, after federal funding ended.

Independent variables

At the classroom level, implementation outcomes were considered to depend on project characteristics, aspects of the institutional setting, and the federal change agent program sponsoring the project. Project characteristics were divided into three components: project resources, educational method or treatment, and implementation strategies. For each component operational variables were measured. Institutional setting was categorized into organizational climate, school/classroom characteristics, and attributes of principal actors.

At the district level, conceived of decision to continue an innovation as a function of both the input variables -- the educational treatment or methods and the different federal change agent management strategies -- and factors reflecting political-economic and organizational concerns the project's past success, the centrality or importance of the educational needs served by the project. The resources required by the project and the organizational political forces inhibiting or promoting the innovation.

Federal Program Comparisons

Program Effects on Project Design

It was found that guidelines, program characteristics, funding and priorities of federal programs did affect project design, but only in a partial way. For vocational education, the existence of federally funded program and the funding opportunities it afforded induced substantial enrichment activities that may be pursued only as long as the federal money exists.

Program Effects on Difficulty of Implementation

Problems that most seriously affected implementation were from two sources: (1) innovation is intrinsically disruptive. Problems attributable to inexperience of project participants in planning for change and adapting to its demands were bound to arise; (2) projects encountered difficulties that reflected the selection mechanisms, administrative guidelines, and substantive priorities of the federal programs. In particular, vocational education projects experienced difficulties gaining support within the district and within the community. Management strategies have subtle influences beyond the initiation stage.

Program Effects on Implementation Outcomes

Vocational education projects had the highest average reported goals achieved but were the least likely to induce teacher change and were the easiest to implement.

Program Effects on Continuation

Vocational education projects were the least likely to be continued even though superintendents viewed them as accomplishing a high percentage of their goals. Vocational education projects seemed to achieve a high percentage of their goals because they were not attempting major innovations but simply adding career enrichment materials to the curriculum. Data from the superintendents suggest that these add-on projects were the least likely to be continued by the district when federal funds terminated.

Factors Affecting Implementation Outcomes

The following results were obtained from a multiple regression analysis of the factors affecting project implementation at the classroom level:

1. The effective implementation of innovation depended primarily on a supportive institutional setting and on an implementation strategy that fostered the mutual adaptation of the staff to the project's demands and of the project's design to the reality of its setting.

2. Projects funded by the same federal program showed considerable variation in their implementation strategies and institutional settings. These within-program variations affected project implementation more significantly than did the differences between federal programs.

3. Projects using similar educational methods or technologies varied considerably in their implementation strategies and institutional settings. These variations affected project implementation more significantly than did the differences between the education methods or technologies themselves.

4. Superintendents, who tend to be organizationally remote, provided a generalized support that may have made schools receptive to

innovations; such receptivity may be essential to Title III projects. Elementary school principals appear to have been "gatekeepers" of change, either facilitating or inhibiting implementation.

5. The following elements of implementation strategies promoted teacher change:

   a. Staff training
   b. Frequent and regular meetings.
   c. Staff meetings held in conjunction with staff training.
   d. The quality and amount of change required by the project.

   The following elements of implementation strategies inhibited perceived success or teacher change:

   a. The lack of the above elements.
   b. Teachers not participating in day-to-day implementation decisions.
   c. For Title III projects, the lack of local material development.

   The following elements of implementation strategies were not significantly related to implementation outcomes:

   a. The quantity of planning.
   b. Participants' freedom to alter the basic project design on difficult projects.
   c. Part or full pay for training.

6. Elementary school projects were more effectively implemented than junior or senior high school projects and were more likely to produce teacher change.

7. Within the range of variation of differential funding considered here, a project's funding level did not have significant effects on teacher change or perceived success. Projects that serve most of, or the entire, student body of elementary shcools were unlikely to produce teacher change. The more concentrated were the resources of Title III projects, the more likely was teacher change to occur.

Factors Affecting Expected Continuation

The results of a multiple regression analysis of the factors affecting continuation indicated that the district decision to continue a project was based on the superintendent's weighing of four general concerns: the project's past success, the centrality or importance of the educational need served by the project, the resources required by the project, and the organizational-political forces inhibiting or promoting the innovation.

In particular, the following detailed hypotheses proved statistically significant:

1. The higher the perceived success, the more likely the project was to be continued.

2. Projects that were central to the educational goals of the district were more likely to be continued.

3. The more expensive the project, the less likely was its continuation.

4. The larger the district, the more likely was project continuation.

5. The higher the percentage of blacks in the district population, the less likely was continuation. (This finding was not significant for our sample of Title III projects.)

6. The higher the percentage of Spanish-speaking population in the district, the more likely was continuation. This positive effect of percentage of Spanish on continuation reflected the likely continuation of Bilingual projects whether funded by Title VII or Title III.

7. General political-social difficulties failed to be significant (perhaps because of poor measurement) but difficulty from student test scores -- a sensitive indicator of community pressure -- was positively related to continuation.

8. Districts that initiated projects with the prior intention of continuing were likely to continue their projects, all other things being equal (e.g., resources and success). Such prior intention may be indicative of a problem-solving approach on the part of the district.

9. Projects supported by principals were likely to be continued.

10. The longer the superintendent's tenure in the district, the more likely projects were to be continued.

Quantitative evidence and careful field work suggests that: "variations in student outcomes have not been consistently related to variations in treatments, once non-school factors are held constant, and "successful" projects have lacked stability and have not been easy to "export" from school to school or district to district" (p. 2).

Three types of effectiveness measures or "outcomes" were studied:

1. Implementation: (a) the relative extent to which project goals are achieve, (b) the type and extent of change in teacher behavior, and (c) the extent to which the project as proposed compares with the project as implemented.

2. Continuation: The extent to which the project is continued by the LEA after federal funds are withdrawn.

3. Dissemination: the extent to which the project is diffused to other schools in the district or to other districts.

Volume III, Appendix D deals with career education projects funded under LEA, 1968, Amendments, Part D. Nine career education demonstration projects around the country were visited. From their case studies, the authors found the following relationships to program success:

- Projects that had a period of advance planning prior to the receipt of the federal grant had significantly higher levels of success.
- Local autonomy in the structuring of individual projects did not seem to contribute much to the overall quality of the project design.
- Early and authentic participation by school level staff in project conceptualization, however, is necessary to engage the cooperation of actual implementers.
- Use of outside agencies such as universities and local action groups as intermediaries between USOE and the local schools has not generally been a successful approach.
- LEA's in comfortable (and mainly suburban) situations had a more positive innovative experience.
- Projects in which neither federal officials nor local authorities made much attempt to monitor operations (e.g. Model Cities set aside projects) did significantly worse.
- For purposes of testing efficacy of an innovative approach, projects probably ought to be installed in the most promising and not the most deserving schools.
- A tendency to develop materials locally characterized the best projects, but this may well fade in importance as the nation gains experience with career education.
- Much more serious and much more sustained attention must go to curriculum revision if career education is to take in secondary schools.
- SEA's will have to overcome their ignorance of and skepticism about career education and should facilitate career oriented innovation in local systems by working for appropriate changes in procedures and by working at inter-district information exchange.
- True commitment by principals is very difficult to attain but seems to be associated with good school performance in this class of innovation.

- For all practical purposes, state financial support is critical to the continuation of projects and perhaps ought to be pledged in advance of the federal commitment to LEA.

Rippey, R. (Ed.) Studies in transactional education. Berkeley, California: McCutchan Publishing Company, 1973.

Transitional analysis focuses on social and organizational relations rather than on educational materials and techniques. Its emphasis is on diagnosis and improvement of a system. Includes both proponents and opponents in implementation and evaluation of change. This book is mostly theoretical with some examples. It is difficult to use because it does not have an index. It may be of future use in providing a theoretical framework for educational systems variables.

Rivlin, A. M. Systematic thinking for social action. Washington, D.C.: Brookings Institute, 1971.

The foreword states, "Americans have devoted a growing share of their national resources to public programs for meeting social needs. Funds for education, health services, manpower training, income maintenance and related programs are expanding rapidly in state, local and federal budgets. Yet dissatisfaction with these programs has never been more widespread. Public aspirations for more social services and more effective social services has risen at least as fast as funds expended.

Responding to these demands, economists and other social scientists have turned their attention to measuring social needs, evaluating the effectiveness of government programs to meet them and estimating the costs and benefits of alternative programs. How successful has the effort been? In this book Alice Rivlin attempts to evaluate the evaluators... The author finds that there has been considerable progress in identifying social problems and estimatng who would gain if social programs were successful. Little progress has been made in comparing the benefits of different social programs... Little progress has been made in distinguishing more effective from less effective approaches even to well-defined social ends. The author maintains that education, health and welfare systems are not organized so as to provide information on the effectiveness of alternative ways of delivering these services. We are not likely to discover more effective ways until we conduct systematic experiments with different ways of delivering social services and analyze the results" (p. vii).

The book is organized around important questions one would want to ask about social action programs. The actual titles of the six chapters are: (1) Introduction (to government decision-

making and management particularly with reference to HEW); (2) Who wins and who loses; (3) What does the most good; (4) Producing effective services: what do we know; (5) Can we find out what works; and (6) Accountability: what does it mean?

In Chapter 3 is discussed how the program analyst compares the value of social action programs. First and foremost is identification of definable and measurable objectives. "Almost everyone, for example, can accept, at least conceptually, a common set of measures that would indicate that the nation is getting healthier. Not all of these measures now exist and most of those that are available are negatively oriented... Education presents a more difficult case. One has to be especially careful not to take inputs for outputs: much of the literature reads as though preventing dropouts and keeping children in school longer were ends in themselves"(p. 48).

Three educational impacts to the students are: (1) improvement in basic intellectual skills; (2) ability to cope (self-confidence, positive self-image, ability to deal with new situations), (3) preparation for future job and income, and (4) reduction of poverty.

She questions the usefulness of cost-benefit analysis in the real world of social action decision-making although the measurement of program benefits has been the focus of much social program evaluation. She says, "it is my hunch that analysts would be wasting time and effort if they gave high priority to making dollar estimates of the benefits of social action programs. Politicians and decision-makers have strong, intuitive ideas about the relative importance of health, education and social well-being that are not likely to be shaken by benefit-cost analysis" (p. 59) "Straightforward benefit-cost analysis and strenuous efforts to place a monetary value on the benefits and compare them are, however, clearly justified when the programs under consideration are primarily investment-programs, designed to increase future income... In the social action area, benefit-cost analysis aids in the choice between income maintenance and various types of human investment as routes out of poverty for the same people" (p. 60-61). "The choice of one policy over the other, however, shouldn't turn on the relation of future incomes to cost alone" (p. 62)

Chapters 4 and 5 deal with other methods of evaluating programs. There is more of an emphasis on qualitative not quantitative data and effects. Discussed are the weaknesses of the "natural experiment" (school districts, organization, administration and curriculum as they are unsystematically associated with student outputs) where (1) analyses yield unrevealing findings; (2) "one-shot" data gathering occurs; (3) output measures are poor; (4) incorrect, unimportant independent variables are selected; (5) data is difficult to analyze comprehensively;

and (6) incorrect unit of observation (e.g., child, classroom, school) is used. Suggestions for improving these kinds of evaluations include: "(1) use of longitudinal data on individual children for recording changes in their performance; (2) detailed program information and resource information at the level of the individual child to reveal extent of intervention/ training given (e.g., number of hours); (3) information on the child's own characteristics and family background to be taken into consideration in assessing the effects of the school on the child" (p. 77). Most federal education programs are not designed to be evaluated for their effectiveness.

Chapter 5 specifically discusses the differences between random innovation and systematic experimentation. Random innovation describes a strategy in which individual communities or schools or health facilities are incouraged to try new approaches and see how they work. The rationale is simple: bureaucracy stifles innovation; change agents must be found and fostered if services are to become more effective. In an education system, an inevitable and continuous conflict arises between administrative rules and innovation. The random innovation strategy of the 1960's produced many innovation strategies. Some were wasteful or foolish, many simply increased the level of services delivered in much the same way; some were genuinely new and more effective. But most... never received national publicity.. This state of affairs suggests that the random innovation strategy lacked a final stage-dissemination of results.

Furthermore, in the absence of a systematic effort to try out the new approach under a variety of circumstances, or to try parts of it separately and together, no one really knows what to publicize. On the other hand, systematic experimentation is unlikely to happen spontaneously because school systems personnel and students would resist. Only when systematic experimentation is federally devised, organized and funded will it occur. This has been the government strategy of the 1970's. Issues in systematic variation included: (1) an ethical question, legally, morally and politically; (2) an ethical question relating to the programs' supporters/ administrators wanting it to succeed (temptation to cheat); (3) vulnerability to methodological problems; (4) difficulty in replicating exactly; (5) participants know they are part of an experiment and so may behave differently than if they did not know this (e.g., perform at a higher level); (6) behavior of participants in a small-scale experiment may differ from that of those in a large-scale experiment or a national program; and (7) they may take too much time.

Chapter 6 suggests approaches in decision-making (decentralization, community control, the market model) their characteristics and weaknesses but concludes "no matter who makes the decisions, effective functioning of the system depends on

measures of achievement... In education it will be necessary to move beyond standardized tests to more sensitive and less culturally-biased measures that reflect not only the intellectual skills of children but their creativity and faith in themselves and enthusiasm for learning" (p. 141) Two general rules can be suggested for the development of performance measures in social action. First, avoid single measures of social service performance (e.g., multiple measures across time; or not judging schools by reading or math scores alone); and secondly, performance measures must reflect the difficulty of the problem (e.g., measures of change are better than those of absolute level). Remember that performance measures are not ends in themselves.

Rivlin, A. & Timpane, P.M. Planned variation in education: an assessment. In Brookings Institute (Eds.), Planned variation in education: should we give up or try harder. Washington, D.C., Brookings Institute, 1975.

This article discusses two federal programs carried out in the 1960's which employed variation experiments in early childhood for disadvantaged children. The programs are the Follow Through and Head Start Planned Variation programs. Both programs suffered from methodological, conceptual, implementation, and political problems which affected the impact of the studies. For two days in April 1973, the Brookings Panel in Social Experimentation brought together some of the people who played key roles in both programs, including federal and local officials, sponsors and evaluators... to assess what they had learned from their collective experience. The primary focus of this meeting was a discussion of what had been learned about how, or how not, to conduct large-scale field studies in education.

The panel made the following points about what they had learned from both the Follow Through and Head Start Planned Vatiation studies:

1. There was extreme pressure on the academic researchers and curriculum developers who became sponsors to translate theories and hypothesis into specific directions for teachers and children.

2. Program evaluators and policy analysts learned about the difficulties of doing social action research in the face of complex political and bureaucratic pressures. More specifically, they learned that design flows and compromises yield costly weak and interpretable results.

3. Suggestions for improvement included: clarifying objectives as that participants could have known what they wanted, allowing more time to carry out planned variation experiments and improving the experimental statistical design. They proposed a five-stage process of development

and testing of educational intervention.

Objectives

For example, it was never made clear to all concerned that these programs were planned variation experiments whose primary purpose was to try out the programs first started as service programs with federal regulations regarding this and then the emphasis changed to planned variation experimentation the service program regulations were inappropriate (i.e., too much community involvement which ended up altering the models too much). Moreover, a planned variation program calls for different time schedules (more time to develop the models, recruit and train staff), different staffing patterns and different evaluation techniques than did a service program. The shift in objectives was clear at the policy-making level but was not clear to Congress and to local officials who operated the programs.

A second issue related to objectives was whether the purpose of the planned variation effort was to test a variety of models individually (compare them to regular schools or regular Head Start service program schools) or to compare the models with each other, or both. The focus changed in midstream and so the analyses were hampered by previous evaluation design decisions.

Model developers held diverse views about the aims of early childhood education. "Hence the objective of testing models individually would have implied the development of many sets of outcome measures, each appropriate to the goals of a particular model or group of models. A comparison of models would have required that some common measures be applied, at moment in time when the full program effects could be captured. The most useful strategy might have been to do both, developing measures appropriate to specific groups of models, but finding out how each model stacked up on the various criteria" (p. 13).

"Finally, it should have been made clear whether the objective was to replicate the sponsor's models as exactly as possible in a variety of sites and observe the outcomes or whether local educators were to be allowed to change and adapt the sponsors' ideas to their needs" (p. 14). If local educators adapt the sponsor's ideas, no conclusions would have been possible as to how the sponsor's model worked when implemented as originally intended" (p. 14).

Time

More time and effort should have gone into development of the models before a large-scale field test was undertaken. "The process of translating general ideas and philosophies of education into classroom practice occurred in the initial year of implementing both Follow Through and Head Start Planned

Variation (HSPV)... It is not safe to base conclusions about the effects of fully developed models on the Follow Through and HSPV experience especially in the first couple of years" (p. 15). Time should also have been devoted to teacher-training. The behavior patterns of teachers, administrators and parents should have been monitored and reinforced over long periods of time, requiring more than just workshop participation. More time and effort was needed in developing outcome measures corresponding to both cognitive and non-cognitive objectives of early childhood education (e.g., standardized tests; parent and teacher input; children's cognition, self-confidence ability to cope, ability to express themselves or share with each other).

Improved Experimental Design

Events which negatively affected the programs' evaluations were (a) lack of randomly assigned communities to each model; (b) the inclusion of too many models; (c) lack of adequate control groups; and (d) lack of equal and adequate number of sites per model(i.e., for inferential procedures).

Five-Stage Process of Development and Testing of Educational Intervention

> "The experiment would begin as a highly controlled investigation at a single site involving random assignment to control and treatment groups and careful observations of inputs and outcomes. If the intervention appeared to have appreciable positive effects under these conditions, a couple of years would then be devoted to developing it further, creating a training program for teachers and instruments for measuring the program's implementation and outcomes. The intervention would next be tried out under natural conditions in a small number of sites, close enought to the sponsor's home base to be supervised without great travel and communication costs, and curriculum, training procedures, and measuring instruments would be revised in the light of this experience. Not until after all this development, small-scale testing and revision had been successfully completed would a large-scale field test be undertaken to find out how the intervention works under a variety of conditions and with a variety of populations. In the final stage, full results of the field test and training would be disseminated to those who wanted to adopt the intervention in their own schools. The whole cycle, from initial experiment to dissemination of the field-test experience, would take ten to twelve years.
>
> Although the scheme is described from the point of view of the developer of a single model or intervention, it could be adapted to the simultaneous development, testing, and comparison of several competing interventions. In this case, outcome measures would be developed for each model -- a set of appropriate to the goals of model A and another appropriate to the goals of model B. But at least some of the measures would be applied to all models so that

comparisons could be made -- some of the model A measures would be used in model B, and vice versa. It would not be necessary for the funding agency to put weights in the various outcomes or make an overall judgment about the comparative value of A and B. It would suffice to make the results available so that local decision makers could choose and to offer training and assistance in the implementation of both models.

While many of the conferees disagree on the details of such a process, there was a broad consensus that the basic aim was right -- that finding more effective methods in education demands commitment of time and resources to a multistage process in which large-scale field testing of new models is a late stage, precede by intensive development work on each model, small-scale testing, careful preparation for implementation and special development of measuring instruments for both inputs and outcomes" (p. 18-19).

Rogers E.M. Diffusion of Innovations. New York: The Free Press, 1962.

A considerable time lag is required before an innovation reaches wide acceptance. There are four essential elements in any analysis of the diffusion of an idea: (1) the innovation, (2) its communication from one individual to another, (3) in a social system, and (4) over time.

The adoption process has five stages: (1) awareness; (2) interest; (3) evaluation; (4) trial; and (5) adoption. At the awareness stage, the individual is exposed to the innovation but lacks complete information about it. At the interest stage, the individual becomes interested and seeks additional information. At the evaluation stage, the individual mentally applies the innovation to his/her present and anticipated future situations and then decides whether or not to try it. At the trial stage, the individual uses the innovation on a small scale in order to determine its utility in his/her own situation. In the adoption stage, the individual decides to continue the full use of the innovation.

Rosen, D. P.; Olson, L.; & Cox, K. Masters of reality: certificate or performance (Prepared for the National Advisory Council for Career Education). Washington, D.C., U.S. Office of Education, 1977.

This study was conducted to obtain an initial view of exemplary programs involving an emphasis on work and education within post-secondary settings. Criteria used for selecting exemplary programs included: student outcomes (attitudes and skills); faculty/guidance/administrator outcomes (attitudes, involvement

through interaction, use of time, reward structure), and community persons outcomes (attitudes, involvement in career education process).

Learner outcomes for career education (from Office of Career Education, USOE, (1975): Career education seeks to produce individuals who when they leave school (at any age or grade) are:

- competent in basic academic skills required for adaptability in our rapidly changing society;
- equipped with good work habits;
- capable of choosing and who have chosen a personally meaningful set of work values that foster in them a desire to work;
- equipped with career decision-making skills, job-hunting skills, and job-getting skills;
- equipped with vocational personal skills at a level that will allow them to gain entry into and attain a degree of success in the occupational society;
- equipped with career decisions based on the widest possible set of data concerning themselves and their educational-vocational opportunities;
- aware of means available to them for continuing and recurrent education once they have left the formal system of schooling;
- successful in being placed in a paid occupation, in further education, or in a vocation consistent with their current career education; and
- successful in incorporating work values into their total personal value structure in such a way that they are able to choose what, for them, is a desirable lifestyle.

Rothman, J. Planning and organizing for social change. New York: Columbia University Press, 1974.

The primary purpose of this of this book is to provide a core of basis social-science research knowledge to social planners and community workers in a variety of human-service fields (such as community mental health, race relations, social work, public health, city planning, community development, public administration, and adult education) for use in guiding their strategies and actions. It is concerned with the systematic application of research findings to practical aspects of com-

munity action and planned social change in order to deal with contemporary social problems. Professor Rothman chose to limit himself to research conducted in 1963-1969. By writing this book, he tried to answer the following question: "Suppose a very wide range of social science research studies covering a designated period of time were systematically reviewed, codified and given an applied formulation; could the resulting product provide tools and strategies for planners and community workers?" (p. xi). The book has seven parts of which two are of interest in theinvestigation of diffusion and adoption of innovation. Part I is an overview of this research retrieval study and the methodology involved. Part 2 describes the practitioner-change agent role (variables affecting performance and dynamics of the role). Part 3 talks about the organizational framework of social change while Part 4 discusses the community setting and Part 5 citizen participation. Part 6 talks about two social change processes of which one is diffusion and adoption of innovations. The final chapters in part seven discuss theory and practice in research utilization.

Of particulr importance are Part 2, the dynamics of the practitioner-change agent role, and Part 6, the diffusion and adoption of innovations. Part 2 concludes with the following paragraph:

> "Discussion of community practitioner roles in the professional literature has generally taken a pragmatic, atheoretical form of discourse. Descriptive writings and even study reports usually have dealt with isolated situations or problems, offering little by way of comparative analysis across discrete contexts. In this chapter we have made an attempt to impose a comparative perspective by synthesizing, in several categories, heterogeneous research touching on the general subject. Three theoretical-conceptual perspectives in particular have been drawn upon to inform this effort -- one from role theory, another from linkage theory, and third from the sociology of the professions" (p. 105).

The formulation of more basic theoretical foundations for dealing with practitioner roles is desperately needed to enhance the understanding of this crucial element of intervention for social change.

Rothman's discussion of innovations draws heavily from the works of Rogers' book, Diffusion of innovations, on Rothman's review of literature discussing diffusion and adoption of innovations of all types and involving multicultural target groups; the following variables were associated with diffusion and adoption of innovations among population groups: cultural values; socio-economic status, past experience; potential adopter's felt need (discontented) for change; value orientation; history of social participation, level of perceived relative advantage; compatibility of values associated with the innovation and pre-existing values; flexibility of the innovation

(e.g., type of target group, or adoption of parts instead of the entire innovation); perceived communicability of the innovation; geographical accessibility of the innovation; complexity (less complex innovations are more adoptable) of the innovation; compatibility of the diffusion process with target system's norms, values and customs; type of communication media used by different categories of adopters; peer support of adaption as perceived by the target system; opinions of influential target system leaders; the clarity and unambiguity of the innovation message; and the process of diffusion and adoption (i.e., awareness, adoption, awareness to trial, awareness to adoption).

Evidenced diffusion and adoption of innovations in organizations are associated in a positive manner with: organizational structure and makeup of staff where organizations with professional staff are more innovative; diversity of professional staff; less formal organizations (formal in the sense of strict job role definitions and rule enforcement procedures); decentralization of the organization unless the director is predisposed to innovate and is in a centralized organization; size of the organization (of secondary importance); lack of organizations emphasis on cost and lack of their emphases on quality of products and services; job satisfaction (either inhibits or facilitates innovation adoption and dissemination); greater linkages of external influences as evidenced by number of joint programs with other organizations and supportive research conducted in mixed or applied settings rather than research on innovations conducted in a purely academic setting.

Variables affecting the success of implementation of innovations were: the use of a demonstration project, presence of a decentralized administration that allows staff influence and and stimulates role performance and the presence of staff which is able to deal with the target organizations or clients for whom the innovations were intended.

Barriers to innovation implementation include both intra- and extra-organizational factors and persons resistant to the innovation.

Schumacher, S. Limitations of a research, development and diffusion (RD&D) strategy in diffusion: a case study of nine local implementations of a state-adopted curriculum. Paper presented at the National Council for the Social Studies Annual Meeting, Boston, November 1972.

This paper discusses the findings of a study of a one-year inter-organization diffusion effort involving a national educational lab, (Central Midwestern Regional Educational Laboratory), a state department of education (Pennsylvania) and nine local school districts. The study focused on their

implementation if an aesthetic education program in the elementary schools (i.e., uses the arts as the discipline base for selection of curriculum) and uses Clark and Guba's (1965) Research Development and Dissemination (RD&D) model of dissemination. The three-section paper is organized as follows: (1) Section I summarizes the theoretical RD&D strategy for educational change and analyzes the significant dimensions as they occurred in the Pennsylvania diffusion tactics; (2) Section II describes and develops hypotheses in three difusion processes: rate of installation, rate of implementation, and rate of adoption by other sites and districts; and (3) Section III summarizes major findings and suggests modifications in the RD&D model.

Methodology

The research was part of the summative evaluation of the Aesthetic Educational Program. Data were collected through participant-observer procedures to develop a five-year summative evaluation plan and to evaluate the diffusion strategies. Data sources also included: field notes on the observations, documents (official reports and working papers from the organization), pupil papers and tests, teachers' comments, notes and the curriculum materials.

Outcome Criteria

The five-year project's ultimately envisioned outcomes were: (1) state wide diffusion of the state adopted curriculum; (2) classroom implementation of the curriculum; (3) completion of curriculum development by Aesthetic Education Program (AEP); (4) inservice and pre-service teacher education programs institutionalized at state and local level; and (5) summative evaluation of the curriculum and project change strategy. The RD&D change strategies involved: (1) a planned rationale; (2) sequentiality (linear development; (3) comprehensive (number of people and tasks, statewide scope); (4) complex change (variety of organizational tasks, configuration and contingency spread) taken directly from the RD&D model while a fifth developed due to state, regional and local cooperative efforts (exchange arrangements, mutual goal setting).

Controlled Choice of Demonstration sites - (nine districts) three in each political-geographic section of Pennsylvania; different in terms of socioeconomic level of the district; urban-rural community, ethnic/racial composition and district/school organizational patterns.

Exchange arrangements were the thrust of the diffusion strategy and were partially formalized in official documents and informal bargaining for consensus. Benefits and costs operated at different degrees of visibility during the first year of the project.

Analysis of diffusion process was in terms of: (1) ease of installment of the packages at the school and minimum class usage, (2) implementation of the packages on extended classroom usage where most package activities or lessons are explored fully, (3) institutionalization of the AEP program into the ongoing instructional processes of general education.

Antecedents to ease of installment were measured in terms of certain observations made during onsite visits about: (a) organizational fluidity (amount of organizational adjustment needed to maintain installment), (b) administrative support (teacher acceptance/rejection), (c) degree of existing "curriculum centrally" (number, type and variety of classroom, school and district events which were similar and pre-existent to the AEP) and (d) divisibility of the program (AEP curriculum can easily become part of the regular curriculum).

Rate of implementation was associated with : (1) teachers' personal style of classroom management, (2) teachers' understanding of program's goals, objectives and procedures as put into action through decision-making in the classroom, (3) AEP package relevance to the pupils arts culture, (4) the "teachability" of the package and teachers' perceptions of this); (5) cooperation in the informal faculty social system (sharing materials, helping each other in using materials and answering other teachers' questions, etc.)

Only a few sites had institutionalized the program (program visibility as expressed in: inclusion of program in school budget, staff attitudes about and mention AEP as regular part of school program and basic education). Minimum program visibility was due to both the accumulated effects of having received program materials (the crux of the AEP) too late, and variation in rate of installment and implementation relating to local conditions. All nine districts agreed to continue participating. Data for adoption rates are based on AEP program orders from Pennsylvania as of 1972 (second year) Several districts disseminated the program to other district schools although the latter did not necessarily use them.

It was at the diffusion stage where project "costs" of package purchase and site demonstration to state visitors becomes visible and predictable. The exchange arrangements up to that point had benefitted the district's maintenance and enhancement needs. Now the district "costs" were expected to benefit the district as well as maintenance and enhancement of the project. If a district had an advocate and investment in obtaining all materials quickly, project costs were maintained during the first year. The report states, "within the maintenance and enhancement of each member organization in an interorganization strategy lies the dynamics for continued project development" (p. 42).

Analysis of the Pennsylvania project suggested the following:

1. In a highly comprehensive inter-organizational change strategy, as the complexity increases, then the range of inter-agency benefits increases.

2. In a highly comprehensive inter-organizational change strategy, as the complexity increases, then the range of inter-organizational resources for project maintenance increases.

3. An organizational maintenance and enhancement needs of members become more visible through inter-organizational maintenance, then organizational investment in the project increases.

4. An organizational maintenance and enhancement needs of members become more predictable through inter-organizational maintenance then organizational investment in the project increases.

5. In an inter-organizational strategy, as the degree of rationality, sequential processes, and complexity increases, then organizational monitoring, assessment and adjustment for maintenance increases.

6. If unanticipated events decrease rational sequential, complex inter-organizational outcomes, then organizational project investment will occur for future benefits outside the domain of the existing inter-organizational arrangements.

Finally, the continuation of diffusion processes through the exchange arrangements within this RD&D approach suggests that reliance on primarily rationalistic, comprehensive, and systematic planning may be insufficient for diffusion. The mere existence of such an elaborate diffusion project challenges the rationale and social theories of diffusion. Both of these fail to give full consideration to the "particularistic" educational organizations and the competitive milieu in which educational diffusion occurs.

The rational theory of diffusion assumes that dissemination to national mass audiences leads automatically to state adoption and local purchase of the product. The presentation of studies describing product proficiencies by a research-based organization is considered adequate to legitimize the spending of public monies. Educators presumably respond to rationality and logical reasoning. This study suggests that school officials often justify curriculum adoption on the basis of community educational mores and values. Although few communities would go so far as to deny the need for an education, disagreements exists over educational priorities and how these are to be obtained in a local school district. Research demonstrating product proficiencies is essential information but it is only one input into the district purchase decision.

The social theory of diffusion assumes that adoption is related to the channels of communication and sources of information e.g., the "opinion leaders." Adoption is based on "prestige suggestion" and "who you know" in a social structure. The social structure may be superintendents, curriculum directors, principals, specialists, etc. This diffusion strategy involving a national laboratory, a state department of education and nine local districts combined a variety of opinion leaders and social structures. Although these social structures and processes were important for initiating interest in the product, visibility of the product in the school and assessment by visitors and district personnel were additional factors in purchase decision.

Neither the rational nor social theories of diffusion appear to give adequate consideration to local district variations in a competitive milieu. Competition exists over the usage of scarce resources such as classroom time, personnel, and public monies. Curriculum adoption decision are justified not in terms of filling a "vaccuum" but providing a better usage of local resources for existing educational goals. Educational goals are phrased in terms of community educational mores. Exchange arrangements allow flexibility for the "particularistic" educational organizations and the variations in community mores and resources. Thus, diffusion of educational products through inter-organizational exchange arrangements seems a viable approach in program development (pp. 43-45).

Scriven, M. Standards for the evaluation of educational programs and products. In G. D. Borich (Ed.), Evaluating educational programs and products. Englewood Cliffs, New Jersey: Educational Technology Publications, 1974.

Scriven presents standards and an accompanying checklist to evaluate programs and products of almost any kind. He lists five ways the checklist can be used. Of present interest is that the checklist can be used to: (1) evaluate programs and products; (2) evaluate evaluation proposals focused on programs, products and producers, and (3) evaluate evaluators of programs, products and producers since competent evaluation must cover each of these points. The reliability of the checklist is derived from a priori rationale; that is, "a straightforward argument could be constructed that the failure to meet any one of the checkpoints immediately leaves open a significant possibility that the product or program is simply not of good quality" (p. 7). The checklist was developed out of an intensive and systematic large-scale product evaluation effort (the 15-member Product Review Panel of 1971-1972 and 1972-1973) done for the National Center for Educational Communications, on subcontract to the National Testing Service. The present version represents the nineth revision of the original checklist.

It is suggested that the following 13 items be marked on a five-point high/low scale. The items include: (1) need, (2) market (plan for dissemination), (3) performance (through field trials to determine extent of dissemination) (4) performance (through consumer ultimately impacted upon), (5) performance (crucial comparisons such as use of proper control groups), (6) performance (long-term followup), (7) performance (side effects during, after, and at the end of the program/product), (8) performance (process), (9) performance (causation of process product), (10) performance (statistical significance), (11) performance (any educational significance), (12) cost-effectiveness (data must be comprehensive, verified and for all programs or products compared), and (13) extended support (is desirable -- not necessary).

Given that few programs and products meet these requirements (actually, few programs and products meet even half of them), appropriate interim policy is not to treat those programs and products that meet the largest number as deserving full support.

"Funding that is available should, according to this plan, be allocated in the following way. It should be made rather easy to obtain small production grants, suitable for producing a module of curriculum materials or a small product, when there is some rather persuasive a priori evidence that supports the possibility that this product will provide a substantial breakthrough. Producers that succeed in establishing, by use of the checklist (or improved successors), that their mini-project has really been successful, then become eligible -- and nobody else does -- for major product development grants. A producer can receive several of the mini-grants, up to the point where the selection panel thinks they have evidence of his incompetence, because these are -- like most experiments in education -- very long shots. But absolutely nobody can get even one maxi-grant without success with a mini-grant. (In addition, management skills are required; these can also be exhibited by a management performance with mini-grant subsidy, as well as otherwise.) The cost of this approach is that it rules out synergistic pay-off unless this can be approached step-wise, which may well not be possible in some important cases. But, at the present stage of our experience, I believe that cost is trivial compared to the costs of the present policy which constantly results in funding poor-quality enterprises" (p. 15).

Shephard, H. Innovation-resisting and innovation-producing organizations. In N. Marguiles & A. Raia (Eds.), Organizational development values, process and technology. New York: McGraw-Hill Book Co., 1972.

This article presents strategies to introduce innovations to an innovation-resisting organization. These alternatives include: (1) concealment of the innovation being used in terms of its operation procedures and costs, sometimes with informal organizational support from respected organization members (e.g., vice president of a firm); and (2) introduction of the innovation in times of crisis when the organization would be more ready to adopt. According to the author, "it requires an unusual combination of qualities: a creative but pragmatic imagination; psychological security and an autonomous nature; an ability to trust others and to earn the trust of others; great energy and determination; a sense of timing; skill in organizing; and a willingness and ability to be machiavellian where that is what the situation requires" (p. 52).

Strategies to be used in innovation-producing organizations in "selling" it are:

1. Periodicity - For a number of kinds of alternations associated with innovating groups. One kind consists in adapting organizational form to suit the requirements of the task at a given phase in the innovation. Different types of employees, skills and professional input are required at different points in the academic year. This quality should be maximized so that innovation-producing organizations will accept an innovation.

2. Possibilities for joint problem-solving by groups operating as an open system and working towards a common cause.

Successful innovators in such a system are often marginal to the organization.

Conditions which encourage innovation-production include: decentralization, the use of a project form of organization and the creation of a class of senior scientists who have the freedom of mobility in the organization and are free of concerns about status in the organization.

The report says that "in sum, movement towards innovation-producing organization requires processes of personal and interpersonal re-education so that more of us develop the qualities of independence and capacity for autonomous interdependence earlier attributed to the ideal innovator" (p. 56).

Shively, J. & Davis, C. Final evaluation report for the Fayette County Part D experience-based career education program. In F. Ruhlin, Interim report - Volume II: a demonstration model of the National Institute of Education experience-based career education program. Lexington, Kentucky: Fayette County Public Schools, August 1978.

The problems under consideration by this project center around the need for high school students to explore career and personal interests by means other than those that are available within the high school itself. Another concern was the need within the high schools to reduce the false dichotomy between "work-oriented" vocational education and "college-oriented" academic education.

The primary purpose of this three-year project was to establish for the eleventh and twelfth grade students an experience-based career education program (EBCE) that would allow them to earn required and elective course credits by performing different types of educational activities in the community. A variety of community employers, agencies and businesses have served as active partners in assisting students with these community education experiences. Participating students with teacher directions have carefully developed individualized learning plans as a basis for all EBCE program activities. The learning plans integrate three curriculum areas: basic academic skills, life skills, and career development.

The program operated in all four high schools in the Fayette County Public Schools and had an enrollment of 163 students during its second year of operation.

A third party evaluation was conducted by Appalachia Educational Lab. Although 163 students participated in the EBCE program, the evaluation data included only those students who took pre-tests in the fall and post-tests at the end of the first, second and third or last quarter of the school year (n= 109). In addition, the design included a control group comprised of a random sample of traditional program students in the same four high schools, some of whom participated in the recruitment process but were not selected for matriculation into the program. (The student selection process is not discussed in this report although it was mentioned that enrollment lasted for 12 weeks; that is, during the first, second, and third, or last quarter of the school year.)

Criteria used to measure successful implementation of the EBCE program and its curricula offerings included assessment of the following student outcomes:

1. Accomplishment of basic academic skills (measured by reading, mathematics concepts and mathematics application subtests of a standardized test).

2. Mastery in career knowledge and planning (measured by the Student Attitude Survey (SAS), a test developed by RFBS or Research for Better Schools; no norms are available).

3. Career maturity and involvement in the career choice process (measured by the New Mexico Career Oriented Activities Checklist, NMCOAC, a stamine norm-referenced test developed by MONHOR).

4. Attitudes towards the learning environment (measured by the assessment of Student Attitudes, the first subtest of the SAS).

5. Sex role stereotyping (measured by the JOBS instrument, an instrument developed by the third-party evaluators).

6. Internal vs. external locus of control (measured by Norwick-Strickland ANS-IE, a normed instrument).

7. Attendance rates.

Other outcome data obtained include: parent opinions (measured by an opinion survey mailed to parents of 24 EBCE participants); employer attitudes towards the EBCE program (measured by questionnaire mailed to a random sample of the employers who serve as instructors at the community experimental learning sites); and EBCE staff ratings regarding various learning strategies utilized in the EBCE program (measured by a specially created rating-scale type instrument).

While some areas of evaluation were oriented towards the collection, processing and analysis of rather objective and quantifiable data, other areas were associated primarily with the analysis and synthesis of more subjective and qualitative data. Such data was gathered through observation of the implementation process and procedures utilized in the Fayette County EBCE program and through interacting with EBCE staff and students.

Analysis of Data. Student outcome data were analyzed with analyses of variance, analyses of covariance and t-test of differences between proportions. Pre- and post-treatment data were collected on the first six criteria while post-treatment data were collected on the last criteria. Parent, employer and staff opinions were compared using percentages.

Shuy, R. W. How can we assess innovative structures and programs?, 1976.

The common-sense approach to evaluating educational innovations includes consideration of:

1. The nature of the innovation (why implemented)

   a. Urban Model used when things are so dismal that there is nothing else to do; a school district is sometimes driven to exciting innovative practices.

   b. Suburban Model ("Jealousy Model") isused out of a desire to keep up with another suburb... and are almost always administrative or procedural rather than content-based.

c. One might innovate, for example, because new knowledge is discovered or because internal evaluation has revealed a specific need but seldom does this appear to be the case in the public schools.

2. Model of innovation - Bell-Curve where innovators and laggards are the extremes, early adaptors go after the new idea if it should come their way and most school systems use the idea provided it is convincingly present.

3. Interference - what should't be used as criteria or should be be noted:

Physical attractiveness of the product (e.g., bias towards new social science books due to illustrations/photographs or what may be attractive to teachers may not be so to students).

Human factors - subjectivity (e.g., during site visits, effect sympathy has on neutralizing negative evaluation findings).

Relationship of claims and reality - Basic questions: What does it say it will do? Does it do it? Does it do it well?

- False claim of many programs is that one segment of the concept-skill-behavior process is singled out with the claim that by improving that segment the entire process will be inhanced. Helping that part which is possible in no way assures that the learning gestalt will be similarly aided.

Another question to ask, Is the gain factor claim realistic? Don't be misled by buzz words.

The theory underlying the structure of program

- This should be made available to the teachers/practitioners like the job of an assembly line worker who turns only one screw is made meaningful by the knowledge that this screw performs a small function in the overall workings of the final product. For example, stages in learning in the beginning courses are relatively well known and measurable but, as the learner progresses, the exact stages in his/her programs are less and less clear.

- School should have competent people who can supply information regarding such theory.

What areas are innovation-susceptible? Know the difference

- Highly visible, potentials for profit usually involve learning skills
- Beware of innovations in innovation-resistent fields (e.g., the study of English Grammar, History, etc.)

Key Items

1. Know why you are innovating before you innovate. Is it out of

desperation or out of jealousy or fear or being left behind?

2. Know how to avoid over-reacting simply to a nice looking product.

3. Know how to be objective about the people-part of the innovation. Good people do not necessarily imply good innovations.

4. Carefully examine the difference or potential difference between the claim of the innovation and the potential for reality. Past claims of success can be objectively viewed.

5. Know the theory or knowledge base which underlies the innovation.

6. Know the difference between innovation-susceptible areas and innovate resistent ones.

Sieber, S.D. Organizational influences on innovation roles. In T. L. Eidell & J. M. Kitchel (Eds.), Knowledge production and utilization in educational administration. Eugene, Oregon: University of Oregon Press, 1968.

Sieber posits four aspects of the public education system which he says distinguishes education from other social systems and which restrict applicability of diffusion research in education. These aspects are the following: "vulnerability to the social environment; the professional self-image and associated values of educational personnel; the diffuseness of educational goals; and the need for coordination and control of the primary clientele as well as of the employees of the system" (p. 122). The educational system viewed as "vulnerable formal organization with diffuse goals, whose functionnaries are quasi-professionals, and which is devoted to processing people within its boundaries" (p. 122).

Vulnerability is "the probability of being subjected to pressures that are incompatible with one's goals without the capacity to resist" (p. 122). Besides being subjected to the environment, there is a discrepancy between the demands of the social environment and the goals of the educational environment and inadequate resources for achieving educational goals.

The vulnerability of school systems holds several specific implications for innovation. The first consequence is that changes in practice that run the risk of disturbing the local community are achieved. A second consequence of vulnerability is that innovations are adopted which are promoted by local publics. These new practices tend to be "non-disruptive,

or watered-down versions of major innovations or outright services to the community" (p. 125). Further, innovations that are persuasively publicized across the nation become candidates for adoption, regardless of their educational significance. A third consequence is that the vulnerability of the system may affect internal relationships in a fashion that reduces serious educational experimentation (i.e., negative effects of teacher-administrator or department attitudes and formal control). Many schools suffer also from excessive diffusion, being swamped with innovative ideas and find it difficult to discriminate among them.

A second major aspect of educational systems is the self-image of professionalism held by school personnel. Several reasons are given for why teachers are not considered professionals in the full sense of the word although they adopt the full fledged professions (i.e., lawyers, physicians) as their reference groups. The institutionalized gap between occupational reality and the aspirations of teachers is characteristic of "quasi-professions" and causes status-insecurity. "Thus, innovations that are proposed by the administration are often resisted by teachers because they imply further restrictions on professional autonomy."

Status insecurity causes teachers to over-comply with school regulation and avoid informal communication on matters of learning and teaching. Another consequence of status insecurity is that "energies which might be devoted to educational experimentation are channeled into status-enhancement activities especially through participation in the local teachers' association or union." A final consequence of status insecurity is that teachers stress their service to clients as a source of satisfaction, not their expertise (teaching skills or knowledge of subject matter) nor their independence from supervision. Teachers stress the uniqueness of each teacher-student relationship so it becomes useless to suggest to them that they should use innovations that were developed for other students in other classrooms.

The diffuseness of terminal goals reinforces the effects of vulnerability and of status-insecurity on the emergence of innovative roles. Practitioners become vulnerable to the "blandishments of educational hucksters" (p. 131) and over-diffusion and uncritical adoption arise. Secondly, diffuseness of goals facilitates the illusion of consensus between school personnel and the public. Differences between instrumental and terminal goals exist and the schools and the public disagree on both kinds of goals. Diffuseness of goals causes teacher over-compliance with the methods of education thereby increasing status-insecurity about their expertise.

The formal coordination and control within the educational system occurs because it assumes a bureaucratic posture

regarding its administrators, staff, counselors and its non-voluntary clients, the students. The school system has "multiple management problems, a hierachical structure of offices, a division of labor with specially trained incumbents, a proliferation of rules and an elaborate record-keeping system" (pp. 133-134). This bureaucratic setting creates strain for the profession role which in turn produces some of the effects of quasi-professionalism already mentioned. This setting affects the adoption as well as non-adoption of innovations because of their real or perceived organizational consequences.

There are three strategies needed for inducing change in education. One is two-way communication between practitioners and change agents; the second is participation of members (i.e., practitioners and change agents) in both development, demonstration and implementation of innovation; the third strategy assumes practitioners are powerless to innovate because of bureaucratic structure. Influence is provided through legal and bureaucratic channel with directives flowing downward (i.e., within and across federal, state, and local levels) and evidence of compliance flowing upward. All three strategies fail if used independently but could be successful if combined.

Sieber, S.D.; Louis, K. S.; & Metzger, L. The use of educational knowledge (Vols. 1 & 2). New York: Columbia University Bureau of Applied Social Research, September 1972.

Formative and outcome evaluations were done of OE funded Pilot State Dissemination Programs in several target areas in three states. The purpose of the Pilot Programs was to test the feasibility of using "field agents" for the dissemination of information to schools. The field agents met with prospective clients, identified their needs or problems, referred the needs to a retrieval staff located in the state education agency who would perform either computer or manual searches, receive the information (in the form of abstracts, microfiche, bibliographies, hardcopy, or even technical assistance) and deliver it to the client, all within as short a time as possible. The field agents were also generally expected to help clients to interpret or adapt the information that was delivered, to appraise its applicability, and to consider the needed steps for use or implementation, and perhaps even help with implementation. In addition to this informational function, it was understood that the field agents might try to improve lateral communication between districts, consult in their own specialty, inagurate teacher workshops or self-renewal activities, and so forth. The technical assistance of SEA staff was also to be enlisted.

Performance of the agents was evaluated for two years. Contrary to expectations, it was found that these agents were able to produce concrete reforms in administrative and classroom practices in rural and urban areas which, for the most part, were operating substantially below the standards of modern educational practice. Further, not only did these field agent generalists elicit greater utilization of knowledge on the part of their clients than occurred when information was sought without the intermediary of the field agent, but they were more successful than specialists in bringing about change. This occurred despite the fact that the clients of the field agents tended to be lower in the educational hierarchy, and therefore less experienced in using expertise for innovative purposes.

The authors consider the key to the field agent's success is the fact that he was a generalist without authority whose presence was legitimized by the provision of information. By not posing as an expert, a school official, or a change-agent, but as a conveyor of potentially useful information, the agent in the Pilot State Program were able to elicit the trust and to trigger the curiosity of school personnel in most of the schools they visited.

Given the results of the study, the authors suggest that some type of dissemination-extention system might be highly important for the future of R&D in education.

Social Science Educational Consortium, National seminar on the diffusion of new instructional materials and practices. 6.0 General observations. Conference Proceedings of the National Seminar on the Diffusion of New Instructional Materials and Practices. Boulder Colorado, June 1-3, 1973.

This document includes participants' comments to a set of questions asked about diffusion at the National Seminar on the Diffusion of New Instructional Materials and Practices. Although no summary conclusions or recommendations are given, conference participants gave general observations about the whole process of diffusion that would be useful to others who are developers or users and who participate in dissemination and implementation activities. Consideration is given to these questions: At what point should a developer of curriculum materials begin his diffusion activities? If you were called in as a consultant to a school district, where would you tell them to turn for resouce information? How could users more effectively know of ther needs? How can teachers (the users) be involved in the development of new products and ideas? Is maladoption of innovations common? Is poor use of innovations common? To what extent is there translation, transformation, and adaptation of innovation during the diffusion process? To what extent do developers create markets for

their products as opposed to responding to a demand initiated by the consumer? To what extent does research influence the development of products? What do you consider the major factors influencing diffusion (dissemination/implementation) of innovation in education?

Other questions asked were: What effects do trends in education have upon the diffusion of educational products: To whom do users of curriculum materials look for help when they feel they need new products forthe classroom? How do users make decisions about their needs with respect to new educational products; and how do users find resources to help their needs?

Following is a summary of conference participants' answers:

1. Most conference participants believed dissemination and contact with users (teachers) should begin very early during the period when new curriculum materials are being tested or as believed by fewer participants during the development stage.

2. On the other hand, participants saw teachers not as developers, but as users.

3. All program participants felt new materials were not well adopted or well used since users tend to use materials differently than intended by the developers (e.g., take parts from a set of curriculum materials, use with wrong grade level). There did not seem to be any expressed desire or strategy for correcting/improving mal-adoption or badly used curriculum materials.

4. Besides surveys, participants thought teachers could express needs for teaching materials by contacting supervisors through local teacher groups or by direct contact with developers if involved in the planning of materials development.

5. There was little said regarding the extent to which research influences curriculum development, the effect of educational trends on curriculum development, whether developers create markets for their products. Surprisingly, all respondents had nothing at all to say about major influences on diffusion.

Stufflebeam, D. L. A depth study of the evaluation requirement. Theory into practice, 1966, 5, 121-134

This paper addresses the wide range of activities which resulted from the passing of the Title I of Public Law 89-10 in September 1965. While this Act brought opportunities

for the improving of education, it also required participating schools to evaluate their programs and new materials/procedures. Stufflebeam presents Clark and Guba's (1965) RD&D model for classifying projects (e.g., according to Research, Development, Diffusion and Adoption Stages) and his own scheme for conceptualization of the general decision and linkage functions of evaluation in the educational change process. He distinguishes evaluation of product and process and discusses problems in evaluation. Finally, he presents specific recommendations, focused within the context of the Title I program but suggested improving educational evaluation in general.

Stufflebeam stresses that the function of evaluation in the change process is to assist in making decisions. At each stage of the change process, decisions are needed to initiate, construct, modify, or discontinue plans and practices, and these are particularly important at the major junctions of the phase change process (i.e., research, development, diffusion and adoption). Although this process is psuedo-chronological, many change phases may be conducted simultaneously by a single agency or some may be skipped. Programs may even discontinue Different kinds of evaluations may be distinguished for different levels of objectives and criteria within the four major phases of the change process.

Key points in the Scheme for the Decision Process include: (1) evaluation plans should be developed and coordinated at the federal, state and local levels; (2) data for all theee types of evaluation will be collected largely at the local level; (3) these data will form the basis for federal, state, and local designs which will ultimately affect local operations; and (4) the difference between product and process evaluation and their relative importance to federal, state and local educational agency decision-makers.

Factors which hinder the evaluation include: (1) lack of evaluation experience; (2) lack of trained evaluators; and (3) inadequate evaluation designs and instruments. Stufflebeam presents a chart which shows some of the problem areas within the four phases of the change process. These problems address data collection, data organization, data analysis, reporting, decision-making and decision implementation wherever applicable in the four phase-change process.

Finally, Stufflebeam presents nine specific recommendations:

1. The U.S. Office of Education, state education agencies, universities and local school districts should collaborate to provide effective evaluation;

2. Specific state plans for evaluation should be developed;

3. The evaluation design should not constrain or interfere with the project design but should contribute to the continual improvement of the process;

4. Both product and process evaluation designs are needed.

5. Data collection should be objective; therefore evaluation staff should be independent of project staff.

6. Role of the school evaluator should be recognized given visibility and supported.

7. Universities and local schools should establish cooperative "personnel banks" as one means to improve educational evaluation.

8. Schools should invest adequate resources in the design and implementation of evaluation, if evaluation is to improve education.

9. The U.S. Office of Education should establish and support a program of basic research and development in educational evaluation.

Research/Dissemination/Adoption Criteria

1. Research (internal/external validity)

2. Development (viability, impact, feasibility, tractability, design specifications, individual performance)

3. Diffusion (intelligibility, fidelity, pervasiveness and impact; credibility, convenience, evidential assessment)

4. Adoption (evaluate training quantity and continuity of personnel; knowledge, understanding and skill of trained personnel; evaluate the trial by looking at adaptability, feasibility and action; evaluate installation-effectiveness and efficiency; evaluate institutionalization continuity, valuation, support).

Stufflebeam, D. L., Foley, W. J., et al. Educational evaluation and decision-making. Itasca, Illinois: F. E. Peacock, 1971.

The general purposes of this book are to deal with the kinds of problems evaluation raises and to devise appropriate solutions. There are four specific objectives:

1. Expose, in detail, five problem areas: definition, decision-making, values and criteria, administrative

levels, and the research model.

2. To identify and assess extent or emergent formulations that might be used in conceptualizing solutions to these five problems and to fashion them into tentative solutions.

3. To synthesize a new definition and methodology of evaluation that builds upon the products of objective 2.

4. To provide some operational guidelines for implementing the proposed new approach in terms of personnel, organization, and administration.

Input Evaluation - Provide information for determining how to utilize resources to meet program goals. While context evaluation is mainly systematic and macroanalytic, input evaluation is essentially ad-hoc and microanalytic. Chapter 7 talks of types of evaluation (input, context, process, product).

Product Evaluation - General method is to operationalize program objectives: operational definitions of objectives, measuring criteria associated with the objectives of the activity, comparing these measurements with predetermined absolute or relative standards, and making rational interpretations of tne outcomes using recorded context, input, and process information.

Criteria may be either instrument or consequential. Instrumental criteria measure intermediate achievements while consequential criteria relate to ultimate consequences. Instrumental objectives are intermediate objectives that lead to ultimate objectives.

Both context and product evaluations assess the extent to which ends are attained. Context evaluation does this systematically with respect to a total system, and product evaluation does so with respect to change efforts within the system. In the assessment of objectives relating to adoption, product evaluation ultimately merges in the measurement of the impact of the total change effort in the overall system. Context evaluation monitors the total system once product evaluation has terminated. Product evaluation reports that objectives were or were not achieved. Process evaluation provides a basis for interpreting the reason for the outcome. If objectives are achieved, process evaluation provides the description of how outcomes were produced (Success Criteria). Such process information provides a basis for replication, diffusion and installation of a change procedure, as well as refinement of an overall design.

Methods for measuring student outcomes when student needs differ and instruction is therefore individualized. One answer: randomly assign students to experimental and control groups. Objectives are assigned for each child based upon

context information about him/her. For each child, product measures and standards of success could be specified in the light of the given objectives. Then, within the general realms of the experimental and control conditions, each child could receive treatments his/her teacher considers most relevant to his/her needs. At the end of the project cycle, the product measures could be applied to each child, and the obtained measurements could be classfiied in nominal terms such as a success or failure or degrees thereof. The results from the experimental and control groups could then be compared, using a non-parametric test such as chi-square. This would allow the investigator to state that the results from program A were or were not superior to those from program B in serving the needs of pupils from the specified population.

Context evaluation - The most basic type. It provides a rationale for determining objectives. It defines the relevant environment, describes the desired and actual conditions pertaining to that environment, identifies unmet needs and unused opportunities, and diagnoses the problems that prevent these needs from being met.

Context evaluation is macroanalytic. It sets the boundaries of the system to be evaluated and then describes and analyzes it. It defines the values and goals of the system to be looked at. Context evaluation provides a basis for stating change objectives through diagnosis and ranking problems in meeting needs or using opportunities, and it analyzes change objectives to determine the amount of change to be effected and the amount of information grasp available for support. It provides a basis for defining objectives operationally, identifying potential methods, logical strategies, and developing proposals for outside funding. It continually monitors the system and provides baseline data about it.

Two modes of methodology in context evaluation: Contingency and Congruence.

CONTINGENCY MODE searches for opportunities and pressures outside the immediate system to promote improvement within the system.

CONGRUENCE MODE compares actual and extended system performance and monitors system to determine if goals are being met. It provides baseline data.

Input evaluation - To provide information for determining how to meet program goals. Identifying and assessing (1) relevant capabilities of the responsible agency, (2) strategies for achieving program goals, and (3) designs for implementing a selected strategy. Necessary information for structuring specific designs to accomplish program objectives.

Tallmagde, G. K. The joint dissemination review panel ideabook. Washington, D.C., U. S. Government Printing Office, October, 1977.

The Joint Dissemination Review Panel's (JDRP) Ideabook has two purposes: (1) to illustrate the many ways to gather convincing evidence of the effectiveness of educational innovations, and (2) to suggest how to bring current evidence of effectiveness together in a succient and forceful manner.

The JDRP was established by the Education Division of the Department of Health, Education, and Welfare in 1972. Currently, it is a joint USOE-NIE panel of 22 members who periodically review educational products and practices for effectiveness before federal monies are used for dissemination purposes.

Effectiveness is based on evidence of positive impact, which can include student gains in skills or knowledge, improvement in student or teacher attitudes, etc. Evaluation data should demonstrate a cause and effect relationship between project activities and impact.

An adequate evaluation should include valid and reliable measures of intervention impact. Several types of measures are used. As stated in the Ideabook:

"There are measures that are obtained directly form the project participants which include:

- Achievement test scores
- Scores on attitude or self-concept scales.

There are direct observational measures of change the intervention was designed to achieve, for example:

- Measures of absenteeism
- Classroom observations of teaching behavior
- Measures of services delivered
- Indicators of parent involvement.

Finally, there are unobtrusive measures designed to assess the achievement of objectives indirectly, by focusing on events that are signs of the desired outcome, not necessarily the outcome itself. Example include:

- Measures of vandalism
- Number of books checked out of library
- Usage by women of facilities formerly restricted to men

A comparison of intervention vs. no intervention is critical. Examples of data that could be used for these comparisons include:

- Test scores of a control group;
- National or local norms;
- Historical records;
- Amount of vandalism in neighboring schools;
- Prior enrollment of limited-English students in vocational programs; and
- Former per-pupil cost of services.

Criterion 1: Did a change occur?

This criterion can be expanded to: Was the change a positive one that was in some way related to the objectives? The following changes should be identified:

- Consequences of the innovation;
- Central to claims of effectiveness; and
- Measures so as to provide credible evidence that the outcome objectives are achieved.

The two essential ingredients are that a change has occurred and that the change is attributable to the intervention.

Criterion 2: Was the effect consistent enough and observed often enough to be statistically significant?

Criterion 3: Was the effect educationally significant?

Criterion 4: Can the intervention be implemented in another location with a reasonable expectation of comparable impact? In order to determine the likelihood that the same product or practices, when used elsewhere, will produce results similar to those obtained at the original site, the panel considers the following questions:

- Is the project setting unique?
- Is the project effect solely due to the unique characteristics of the staff?
- What evidence is there to suggest that the intervention would work with different participants, in a different setting, and with a different staff?
- What components are essential? Can these be disseminated?

Criterion 5: How likely is it that the observed effects resulted from the intervention?

Criterion 6: Is the preserted evidence believable and interpretable?

The necessary evidence of effectiveness are:

Interpretability of measures: Evidence that the quantitative measures are reliable and valid indicators of the effects claimed.

Credibility of evidence: Who collected and analyzed the data? What assurances are there that the findings are objective?

Evidence of impact: What is the evidence that something happened? What are the effects claimed for the intervention?

Evidence of statistical reliability of the effects: What is the evidence that the effects happened often enough and with sufficient reliability to be likely to happen again under similar circumstances?

Evidence that the effects are educationally meaningful: What the evidence that the effects are large enough, powerful enough, or important enough to be educationally meaningful, regardless of their statistical significance?

Evidence that the effects are attributable to the intervention: Can alternative explanations such as practice effects, maturation, selection of superior treatment groups, etc., be ruled out?

Evidence of generalizability to the populations for which the product or practice is intended: Evidence that the product or practice has been tested widely enough and under sufficiently diverse circumstances to give assurance that the effects claimed may be similar when the product or practice is used elsewhere for the populations intended.

Texas career education measurement series: report of the assessment in career education. Austin, Texas: Texas Education Agency, Fall 1976.

Background Information

In 1972, the State Board of Education selected career education as a priority area of concern. Consequently, the Texas Education Agency established an Assessment of Career Education (ACE) Steering Committee to work cooperatively with Partners in Career Education (a project sponsored by the Dallas and Fort Worth school districts and the education service centers in Regions X and XI) to more clearly define what skills, capabilities, knowledge, and attitudes a 17-year-old student should possess. A statewide survey utilizing a cross-section of Texas citizens was conducted resulting in 177 student outcomes for career education being rated as "basic" for all students. Approximately 500 test items were then developed jointly with Westinghouse Learning Corporation (WLC) to measure the student outcomes. Following item tryouts and field testing, the

Career Education Measurement Series (CEMS) was developed and used in a statewide assessment during the fall of 1975.

Measurement Instruments

CEMS is a criterion-referenced, diagnostic system designed to support instruction in career education. The instruments in the system represent a hierarchy of 400 test items, 63 basic learner outcomes, 26 sub-categories, and 9 categories. In all, CEMS consists of: (a) a survey test, comprised of 45 items, designed to serve as a screening device to diagnose probably areas of strengths and weaknesses in either individual or groups of students at the sub-category level, and (b) 16 category tests, comprised of 9 to 22 items, designed to provide specific diagnostic information about student performance in relation to the basic learner outcomes for career education.

Results

In the fall of 1975, the CEMS survey test was administered to 20,073 ninth grade and 6,593 twelfth grade students. Each of the 16 category tests were also administered to approximately 700 ninth grade students throughout the state. The results the statewide assessment can be summarized as follows:

- How did Texas students perform on the 26 sub-categories measured by the survey test?

  In all, more than one-half of the students met the performance criterion in 20 of the 26 sub-categories on the survey test. Areas of highest performance were: attitudes toward work, understanding self-concept, and responsibilities within work environment. Areas of lowest performance were: job characteristics, interpresonal relationships, and job specialization.

- Were there significant differences in the performance of students ethnicity, sex, and grade levels?

  In general, the results indicate that the twelfth graders scored higher than the ninth graders, the female students scored higher than the male students, and the students classified as "other" scored higher than the 'Mexican American and "Black" students respectively.

- Was the survey test an effective screening device for diagnosing student learning needs which require further investigation?

  Results indicate that the survey test is useful as a diagnostic instrument to indicate areas where further measurement is needed.

- How helpful is this kind of information for decision-making at both the student and program levels?

  An evaluation questionnaire was sent to 351 teachers and counselors and 198 principals who participated in the statewide assessment. Of

those 168 teachers and counselors and 121 principals who responded, over 75% felt that the test results were: (1) useful for program planning, (2) most useful to vocational educators, (3) useful in counseling students, and (4) reported too late in the school year. Most of them felt that the career education concepts could be infused into the ongoing instructional programs in their schools.

The document lists nine categories of learner outcomes.

Thomas, I. Final third party evaluation report, project no. 502A960015, grant no. OEG-391-75-0089. In A, Upton & S. Barrett. Final report, project No. 502A960015, grant no. OEG-391-74-0089 operational model for career development and vocational preparation. Sacramento, California: California State Department of Education, October 1978.

The report discusses the accomplishments of the third and final year of this VEA Part D project administered by the California State Department of Education. The original 1975-1976 proposal, which was subsequently funded by the U.S. Office of Education, outlined the development of two demonstration models of comprehensive career education incorporating the concepts and recommendations that had been generated in the California Career Development Curriculum K-adult and the Vocational Education and the Career Education Task monographs. As a result of the federal contract, three California state department units (Vocational Education, Pupil Personnel Services, and Career Education) and two California school districts had established a consortium designed to develop two demonstration sites for model career development and vocational preparation systems and staffs development programs.

Two school district sites were chosen because they exhibited previously-made developments in establishing career education as part of the regular school program (i.e., pilot project regarding career awareness by three-sixth graders, career education libraries, infusion of career education in the classroom development of career guidance centers, programs in 12 occupational clusters). The school district sites in reference were the Freemont Unified School District in Alameda County and the Huntington Beach Union High School District in Orange County; these districts were different in organizational patterns, population, problems/strength in implemented goals and objectives. As a result, the final product of this state program resulted in two, not one, models.

The Freemont Unified School District project was centered around implementation of a sophomore-level, career decision-making course in one high school which evolved from plans made

during pilot testing on a guidance system developed by the Oregon State Employment Services. The State of Oregon's system was entiteld SEARCH (Systems Exploration and Research for areer Help). In addition, the Freemont project's activities were planned to meet the objectives of six components: (1) Career Guidance Center, (2) Career Decision-making, (3) Staff Development/Infusion, (4) Articulation, (5) Community Involvement, and (6) Dissemination).

The Huntington Beach Union High School District undertook the development and articulation of a K-12 competency-based career education model which necessitated cooperative work across school districts as well as across schools within each district. The scheduled activities for this project specifically included meeting the following six objectives: (1) involvement in the project consortium, (2) dissemination, (3) staff development, (4) implementation, (5) articulation, and (6) assessment and evaluation of student outcomes.

Evaluation

Through periodic onsite visits to each project site, the evaluators designed and implemented the program monitoring and evaluation procedures. In a general sense, the evaluation centered around goal attainment at each of the two school district sites. Specifically evaluated of the Freemont project after its second year of operation were outcomes for students who had participated in the one-semester course entitled Career Decision-Making (CDM). Similarly evaluated of the Huntington Beach project were outcomes for students who had participated in the career education competency-based model infused into the regular curricula (I-12) covering the topics of career planning and decision making; lifestyle and personal satisfaction, education, work and leisure alternatives; and occupational roles.

Goal attainment was also evaluated by means of the evaluators' questionnaires, subjective impressions regarding project operations and by means of informal interactions with school staff and public and private agency staff. Certain success criteria were used to determine the extent of goal attainment during the third and final project year. By means of specified objectives, specially developed questionnaires, interviews and tests administered to students, the Freemont and Huntington Beach project were assessed separately.

In order to evaluate the Career Guidance Center (CGC) component of the Freemont project, the evaluators looked at the percent of students in the school who: (1) were aware of career-relevant materials; (2) had completed the CDM course; (3) had a four-year plan of courses; and (4) had a reviewed and updated Career Action Plan (on file). To evaluate the Career Decision-Making Course (CDM) component, the evaluators looked

at the: (1) percent of students who successfully completed the course through a review of randomly sampled student records); and (2) results from a measure testing student abilities to make decisions regarding careers (i.e., the Career Decision-Making Skills Instrument of the College Board Career Skills Assessment Program). The Analysis of outcomes of students measured by the CDM instrument was determined by evaluation of mean percent of correct responses, so no statistical test procedures could be used. There were pre- and post-data for second semester students only, although there was also pre-test data from a control group school and post-test data from students who had taken the course the previous year. A third measure of the CMD course's success was evidence of dissemination (i.e., sending materials verified by the receiving school's letter). To evaluate the staff development infusion component of the program at Freemont, the evaluators assessed: (1) the percent of school staff who attended career education workshops and participants' evaluations of the workshop; (2) teacher desires to infuse career education as expressed in comments regarding the workshops and; (3) the percent of courses which employed instructional methods, content and activities supporting the program's goals about career education. Success as determined by the last criteria, was evaluated by evaluator's subjective impressions obtained in an eight-question survey of sampled students who were asked to rate how each course being taken helped them attain eight goals (self-reliance, intellectual curiosity, problem-solving, self-dignity, interpersonal skills, positive attitudes regarding family and citizenship roles, creative use of leisure time, and awareness of occupational interests and roles). There were pre-test or control group data used as a comparison to evaluate the articulation component of Freemont's program, the evaluators described the degree of school staff involvement in inter-school meetings and in sharing materials. In addition, each high school was required to implement career education curriculum materials in at least one lower level school (junior high). The Appalachia and SASS materials were piloted in six junior high schools at the eighth grade level although the success of the pilot testing was never evaluated. Community involvement in the program was evaluated by determining the percent of visitors and or career education workshop participants who were not educators. Dissemination of the project was determined by the number of workshops and conferences conducted. These were also evaluated by the participants by means of workshop evaluation forms.

Different criteria for goal attainment were developed to assess the Huntington Beach project. Minutes from the consortium meetings were reviewed in order to verify the consortium's establishment and continuation. The dissemination component of this project was evaluated in terms of the number of: (1) statewide workshops, (2) presentations at other conferences, and (3) times that speakers or materials were sent to area elementary schools. Dissemination efforts were also indicated

by the elementary schools informal commitments to continue career education.

Through informal interaction with staff and review of program content, school records student or workshop evaluation reports, the evaluators assessed implementation of the staff development component of the Huntington Beach project. Other measures used to determine the extent of implementation were the: (1) percent of elementary and high school staff which use career education materials, (2) results from a review of student career education course evaluation forms, and (3) verification that 50% of the competencies needed for graduation were infused into the curricula. Articulation in the project was assessed by the evaluators subjective impressions regarding the school staff's sharing of information and of resources. In order to look at the evaluation component of the Huntington Beach project, the evaluators assessed student undertaking of career education concepts via a career development survey instrument, especially created as a criterion-reference test and directly related to teachers career education objectives. All second, fifth, and eighth graders in two project-related schools and one control school were tested at the beginning and end of the school year. Data were analyzed using series of t-tests. High school freshmen's understanding of and attitudes towards career education were assessed with specially developed tests using a pre-post design. The data were presented in terms of percent correct so statistical significance was not determined.

Dissemination efforts were determined in terms of the number of: (1) presentations given regarding the program; (2) groups/organizations provided with information and/or materials; and (3) visitors to the project. Records of names and addresses had been kept.

Tisdel, L. E. Evaluating innovation program: Level I evaluation in the Piedmont Schools Project. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, April 1976.

The Piedmont Schools Project (PSP) was one of the experimental schools projects awarded a five-year grant by the National Institute Education (NIE). The PSP is located in the Piedmont region near Greer, South Carolina and serves 5,000 K-12 students in eight schools. These students have historically performed at one or more grades below the national average on all content areas of standardized achievement tests. With the goal of raising standardized test scores, the program included the following innovations: community involvement, individualized instruction, the open school, differentiated staffing, affective education and ongoing evaluation. Although a two-level

(formative and summative) evaluation effort was conducted, this report only describes the Level I evaluation, thereby mainly providing information to the project, not NIE. This Level I evaluation included "active evaluation" and "reactive evaluation" components.

The active component included the rise of standardized test scores collected twice yearly regarding achievement, aptitude and affective data. These data were used both cross-sectionally and longitudinally since fifth graders were tested every year and the same group of children were tested as second through fifth graders; and since a control group (six district schools) was chosen based on I.Q., achievement, school size, Black/White ratio, type of community and type of program. Beside collection of data from standardized tests, the Level I evaluation team provided the district's schools and project participants' teachers with technical assistance in evaluation and test design. Teachers and staff could also provide input into the evaluation design and purpose. A booklet was designed to help students develop test taking skills with the rationale that it could be used in raising standardized test scores.

The reactive component was administered in conjunction with the active evaluation component (i.e., standardized tests) and included opinion/interest surveys administered to students with the hopes of using items to plan individualized courses of study (e.g., individual reading prescriptions).

Problems encountered in this evaluation effort included the following: (1) little rapport between the teaching/administrative staff and the evaluation team since the evaluation team had to educate them about internal evaluation; (2) ambiguity of the program's goals and objectives which eventually had to be rewritten; and (3) lack of program administrative continuity due to turnover of staff.

Tuckman, B.W. & Carducci, J. A. Evaluating career education; a review and a model (ERIC/TM Report 39). Princeton, N.J.: ERIC Clearinghouse on Tests, Measurements and Resources, 1974.

The purpose of this paper was to: (1) examine and review evaluations of career education programs currently in the literature, and (2) to suggest a model or paradigm for conducting such evaluations.

In the review of evaluation studies, prior evaluations were discussed in terms of their findings and their research design (i.e., experimental/quasi-experimental, post-tests treatment data only designs or case studies)

After an extensive review of the literature concerned with evaluating career education objectives, K-12 grade, six areas of outcomes were isolated as crucial indices of the adequacy of career education. These areas include: (1) self-awareness; (2) career awareness; (3) decision-making skills; (4) overall school behavior; (5) career competencies; and (6) career attitudes and interests. Specific measurement instruments associated with these indices used in the evaluations cited by Tuckman and Carducci included: Barclay's Classroom Climate Inventory, California Test of Personality, Career Development Battery, Career Maturity Inventory, Crites' Career Maturity Inventory, Gordon's Occupational Checklist, Knowledge of Careers Test, Occupational Information Survey, Purdue Master Attitude Scale,Self-Observation Scale, Sociograms and the Westbrooks' Vocational Maturity Scale. Also mentioned in their review were instruments specially developed by the evaluators, other product evaluation measures (information from school records, standardized school achievement/intelligence test scores) and process evaluation measures (interviews, staff and teacher attitudes, onsite subjective observations).

Based on their review of the literature, a Framework for Assessing Career Education Utilization Programs (FACEUP) was generated. It appears below.

I. Design

a. Experimental and quasi-experimental: experimental vs. control group

b. Descriptive: one group-quantitative data.

c. Case Study: one group-qualitative data

II. Independence Variables - Nature of Treatment

a. Intensity
b. Duration
c. Teacher training
d. Public relations
e. quality of materials
f. grade level.

III. Independent Variables - Outcomes

a. Process (bridge gap between input and product)

- teacher behavior
- student behavior
- counseling

b. Product

- self-awareness (self-descriptions, self-concept)

- career awareness (knowledge of careers)
- decision-making skills (ability to make decisions and solve problems) Watson-Glazer Critical Thinking Appraisal
- overall school behavior (grades, school achievement, attendance, attitudes towards school) by product of career education
- career competencies (saleable skills)
- career attitudes and interests (attitudes toward work, career development, interests)

c. Followup of graduates (various post-program intervals) employment status, career adjustment and satisfaction.

IV. Control Variables

a. Selection bias
b. History bias
c. Maturation bias
d. Population restrictions

V. Data Analysis

a. Descriptive
b. Inferential

The suggested model or paradigm for assessing career education had the following characteristics: (1) to obtain generalizable results preference of experimental or quasi-experimental designs with the inclusion of pre-test data; (2) inclusion of a well-defined treatment group (e.g., defined intensity, duration and quality of career education); (3) inclusion of measures of process outcomes such as systematic observations of classroom behavior; (4) inclusion of measures in each of the six previously mentioned important indices of career education; (5) inclusion of research followups; (6) care in and ability to separate treatment effects from the effect of selection bias or extraneous effects due to historical factors; (7) equality of control and treatment groups when used in order to avoid validity problems associated with the maturation bias; and (8) inclusion of both descriptive and inferential statistics analyzed by the evaluators themselves.

Villoni, S. Final report project no. 502A970002, grant no. G391-75-0038, Project CLIMB. Garden Grove, California: Garden Grove Unified School District, June 1978.

This report covers the period between July 1, 1977, through June 30, 1978, and is for the third and final project year. The purpose of the project during its three years was to develop,

field test and publish a career infusion unit curriculum made for grades 10-12 in the Garden Grove Unified School District. The major focus was on: (1) teacher orientation to and training in career education; (2) teacher validation and preparation of career units and materials; (3) field testing revision and publication of curriculum; and (4) evaluation of project efforts. According to the original proposal, the project was to design and implement a career education infusion model, using an interdisciplinary approach through the core courses of English, Math and Social Sciences. During this third year, two transport schools were added to field test dissemination of the concepts and materials developed during the first two years. Therefore, the curriculum and materials were implemented in three schools during the final year of project operations. The project also included an objective to offer exploration of the world of work through field trips and guest speakers. This final activity was fully implemented in only the project schools, not the transport schools.

Important characteristics of this school district and program were: (1) that the School Board adopted a policy statement, cooperatively developed with the community, district, teaching staff and other district personnel expressing its commitment to career/vocational education; and (2) a major focus of the project was staff development. Teachers were first helped to understand the curriculum concepts which were to underlie all of the units. They were then helped to write the units and field test what had been written in their own classes. Teachers were expected to score 75% or better on a project developed test on the information which was taught to students.

Evaluation

Fulfillment of program objectives was evaluated in the Garden Grove Unified School District and in the two transport schools during year three in order to evaluate implementation and impact. Delineated for each program objective at the main or transport schools were: (1) success criteria; (2) the related evaluation question (e.g., expected student, teacher, curriculum or community outcome, associated program activities, and rationale associating outcomes to program activities); (3) evaluation data sources; (4) method of instrumentation; (5) sampling; and (6) research design and analysis specifications.

Success criteria regarding student outcomes set standards of acceptable performance on standardized norm-reference tests of career maturity (e.g. Career Maturity Inventory, Parts I-IV) or rather career awareness and career decision-making and of school achievement (e.g., CTBS, English, Math, and Social Studies). A third student outcome objective set quotas for percent of students who would participate in community exploration (field trips) and in career decision-making activities

via the infusion units. The data sources used to evaluate student outcomes included second and third year program participants.

Either a pre-post or post-design was used. Males' and females' behavior scores were compared. A comparison group (post-design) was included in the evaluation of student achievement. Using a post-design, teachers (of the career infusion units) were required to score 75% correct on a Teacher Career Survey, a criterion-reference test developed by the evaluators. Expected curriculum outcomes for only the project schools as described by the program objectives involved the acceptable number of career infusion unit per year (1-3) and by the end of year three. Using a post-design, parent/community involvement was designated as successful if advisory committee members had attended 75% project-related meetings and had reviewed project-developed materials. Data sources includes lists of teachers, advisory committee membership lists, student and teacher records.

Dissemination. Strategies regarding dissemination included the following:

1. Initial publicity in local and in school publications, journals and newspapers (partly in order to encourage students to participate).

2. Onsite visits by persons (a log includes their names and organizations).

3. Pamphlets giving an overview/sample curricula of the project were mailed (unsolicited) and a log kept of which organizations/individuals were sent materials.

4. Unsolicaited copies of complete curricula sent to eight high schools in the Garden Grove Unified School District.

5. Presentations made at conferences (names, dates, and places were noted).

Weatherford, J. W., Brown, B. J. Petty, E., Knight, M. & Westerman, J. Third party evaluation final report for Moore-Norman AVTS exemplary experience-based career education project. In. S. Kerr, Annual interim report, project no: 502AH60010, grant no. G61-76-00968 (502) experience-based career education. Norman, Oklahoma: Moore-Norman Area Vocational-Technical School, September 1978.

This report covers the second year program. The program goal has been to help bridge the gap between school and employment by allowing high school juniors and seniors and out-of-school

youth between the ages of 16 and 21 to: (1) become aware of places of employment in the community; (2) choose the places and jobs they want to know about based on interest, values, aptitudes and abilities; (3) spend up to 12 weeks at any job site selected for exploratory purposes; (4) move into a cooperative type situation if an area of interest is found which they want to pursue as a possible occupational choice; and (5) obtain counseling support, placement and followup in the work place.

The strategy used to meet the needs of youth were defined as the following objectives: (1) to include 40 youth beginning January 1977 from the Moore-Norman Area Vocational-Technical School District No. 16 who desire experience-based career education and to expand each year with a goal of serving 150 youth in the program by the third year; (2) to place each individual under the supervision of a learning coordinator based at the Moore-Norman Area Vocational-Technical School who will help identify needs and values and place that individual at appropriate experience sites; (3) to award credit toward graduation to students involved in the experience-based career education program for each semester of time spent at the work site and with the learning coordinator; (4) to develop the capability of training staff of other school districts in techniques for starting and implementing an experience-based career education program as well as improving existing cooperative programs; (5) to enlist and analyze a cadre of experience sites in the community; and (6) to organize an EBCE Advisory Council for support and advice.

Students from Moore-Norman high school were recruited from counseling groups and from English classes although the program was also introduced to school counselors, teachers, and administrators who in turn recruited program participants. The program began with 96 students, eight of which were post-secondary while the enrollment for the summer was 18, thus increasing the number of participants to 118 for the fiscal year.

Third-Party Evaluation

In line with the Moore-Norman EBCE proposal, students were tested twice in a pre-test (September) and post-test (June) fashion. This combined with the two levels of the treatment variable (EBCE group vs. control) produced a two-variable, expost-facto design. The student outcome instruments used included the Career Maturity Inventory, Student Attitude Survey, the Socialization Profile, the Rotter I-E Scale and case studies. Their opinions to the programs were also assessed with the aid of a 32-item questionnaire. Parents were polled about their opinions via a parent opinion survey. All community sites were visited by EBCE staff and many were visited by the

third party evaluators. Subjective impressions of the evaluators observing the sites and visiting the staff were used to assess resource personnel and staff attitudes and project administration procedures. A management by objectives (MBO) system was used to administer the program. Review of project records suggested proper management of the program.

Welsh, P. & Associates. Final evaluation report for the Portland Public School System, Part D-PL 90-576: Implementing an experience-based career education program. In D. Dole, Annual report project no. 502AH60012, grant no. G310-76-0051 demonstration of NIE's experience-based career education program. Portland, Connecticut: Portland Connecticut School District, September 1978.

This report is the final evaluation report on the second year of Portland Public School System project for implementing an Experience-Based Career Education Program (EBCE). NIE mandated they select one of four models so the model selected by the school system was one developed by Appalachian Educational Laboratory (AEL). The program was based on experiential learning, with student having career and academic experiences in the community. Each student had a personalized program -- both in career exploration and pursual of academics and personal needs and interests which would lead to their earning of a high school diploma. All program participants were volunteers who entered the program with parental permission. The students lived in Portland or surrounding towns. They participated in the program during the 1975 fall or 1978 spring semester.

The third party evaluation used a pre-post test, no control group design and looked at how well the program fulfilled its student outcome and process objectives. The pre-test period was September 1977 or January 1978 and the post-test period, January 1978 or June 1978. The student outcome objectives were the following:

1. Increase in basic skill area as measured by a standardized test in terms of normative expectations (used CTBS subtest 2 and subtest 7; or, Reading and Math).

2. Increase in knowledge of the world of work, career awareness skills, interests and aptitudes in relation to careers and will have positive attitudes towards career planning. The measure used was the Career Maturity Index (CMI) of which the first subscale, the CMI Attitude Scale, measures feelings, subjective reactions and the dispositions of the individual towards making a career choice and entering the world of work. In addition, specially created data

sources/instruments were a self-report questionnaire, a student summary evaluation form and interactions with students and staff.

3. Improved life skills needed for transition into adulthood and improved motivation to learn. The self-report questionnaire, student summary evaluation and informal interviews were used to evaluate the achievement of this objective.

4. Student will have a positive attitude toward the program and a positive assessment of their progress (see objective 3 above for evaluation criteria).

5. Improved ability to make career decisions as assessed by review of student records and informal interviews with student and staff.

6. Less inclined to drop out of school; the number of EBCE students that dropped out of school was used as the criterion measure.

In order to evaluate how well objectives were met, the evaluators looked at three sources of data: (1) student record review and direct monthly onsite observation; (2) interviews with students; and (3) opinion and attitude questionnaires administered to parents and resource persons. Students and staff were observed in all phases of program operations (employer sizes, learning center, a counseling sessions, at advisory committee meetings, etc.). The process goals were the following:

1. All students will be offered an integrated interdisciplinary curriculum.

2. All students who satisfactorily complete the program will be awarded the academic credit needed for graduation.

3. Each student will have his/her total program coordinated and primarily guided by a single staff person.

4. Each student will have access to a professional guidance and counseling staff member.

5. All learning procedures, goals and resources are integraded into a single coordinated instrumental system.

6. Students will have a sequence of learning activities in a variety of modes, tailored to individual goals, needs, abilities and interests.

7. Students will be provided the opportunity for effective learning at a variety of experience sites in accordance with their career, academic and personal needs and interests.

8. Staff - external resources (parents, resource persons) will be participants in the evaluation, student assessment, instructional planning, etc., and will have positive attitudes towards the program.

All program objectives were achieved although there seems to be a need for improved communication with both parents and resource persons (see process objective 8). In addition, other formative findings relate to the dissemination, guidance and counseling activities.

Dissemination

1. The project hosted over 50 onsite visitors

2. Fifteen EBCE workshops presented at locations throughout New England.

3. The project presented at three national/regional conferences.

4. The project continued inservice workshop series for the Portland High School staff and has extended the series to include teachers interested in incorporating EBCE principles into classroom instruction.

5. Adoption occurred in two other New England towns.

6. Two other school districts participating in EBCE regional program was due to Portland's training.

7. Six other school districts indicated exceptional interest and 20 have indicated some interest.

Institutionalization

Another goal of the project was to utilize the concepts inherent in EBCE as change agents for school-wide programs. This is being accomplished through the inclusion of EBCE concepts/processes in Portland High School's Freshman Forum Program, which is a counseling and guidance program. During 1977-1978, EBCE staff members participated in the Freshmen Forum and introduced concepts of EBCE. As a result, the project expanded the guidance component of the Appalachian Educational Lab model.

Furthermore, they conducted a pilot career education program for fifth and seventh graders from the career component of the AEL model. That will be implemented more fully next year.

ADDENDUM

Far West Laboratory for Educational Research and Development, NDN, a success story. Concord, New Hampshire: LEA Associates, June 1978.

The National Diffusion Network (NDN) is a nationwide system of trained educators working together in a sustained effort to help school districts adopt tested programs. Key educator roles in the NDN are state facilitators (who facilitate adoption), USOE-NIE Joint Dissemination Review Panel (which screens out less effective innovations), and the developed/demonstrator (who develops the innovation and gives training in the use of the innovation at the adopting schools). Like a major corporation, NDN is both a sales and service organization. It not only helps school districts pick out an appropriate program if they are in the market for one, but it follows up once an adoption is made. The followup includes trouble shooting, assessing what adjustments are needed after the break-in period, and assisting adopting districts in evaluating the effects of the program. Unlike other dissemination efforts sponsored in recent years, the immediate goal of the NDN is program effectiveness. The NDN has been described as (1) offering a means of sharing information, (2) facilitating incremental change, and (3) stressing involvement at all levels (local, state, and federal) to change the educational system. It has been successful partly because of the enthusiasm and credibility of change agents.

NDN was evaluated by Stanford Research Institute (SRI) in May of 1977. Its accomplishments were measured by SRI in four ways. These were: (1) its ability to help local districts improve their programs; (2) its ability to help districts meet state and federal requirements; (3) the number and quality of adoptions; and (4) cost effectiveness, or return on the federal investment.

Programs chosen for dissemination by NDN are picked by the Joint Dissemination Review Panel. Criteria used are: effectiveness (impact on students), statistical significance in student gains specifically attributable to the program, and program feasibility for the "typical school". Expensive large-scale studies aren't necessary for validating the exemplary programs. Programs having purposes other than causing gains in cognitive achievement are judged by different criteria although the same logic applies; effectiveness must be proved to the satisfaction of panel members. High priority programs are given consideration by the panel in order to fill gaps in specific federally- or state-defined areas. Federal officials also consider geographic representation of similar programs as an important criteria.

There are over 100 NDN programs funded for development/demonstration. This document mentions 13 examples which aim at one of the following goals: (1) improving basic skills; (2) establishing special education strategies through teacher training;

(3) establishing family (parent-child) preschool and early childhood education curricula; (4) establishing teacher training and curricula for migrant children, ages three to third grade; (5) establishing programs for high school students; (6) establishing environmental and educational programs; and (7) establishing teacher training and curriculum change. These programs had specific impacts and were disseminated.

Impact criteria for these programs included: achievement on standardized tests, student motivation to learn, parental attitudes and degree of involvement, and fullfillment of program-specific goals and objectives. Dissemination criteria mentioned included number of school districts adopting a program and/or number of states adopting it, and/or number of teachers or students involved in the program of these school districts and/or states. A program involving teacher training also mentioned the number of satellite training sites established in adopting states. Some programs have been adopted in a number of foreign countries while another stressed infusion of program concepts into the entire regular school curriculum.

The successful adoption of one program resulted in 10 second-generation adoptions, ranging from schools in inner-city and suburban Chicago to schools in districts serving 700 children. This specific program was geared at helping teachers infuse any innovations into the curriculum.

Gustafson, R. Exemplary vocational programs in Vermont: an impact study. Paper presented at the meeting of the American Vocational Education Research Association, Dallas, December 1978.

The study represented in this paper was conducted in 1977 by Orren Laferte and Richard Gustafson as part of a contract with the Vermont Department of Education, Vocational-Technical Division, Montpelier, Vermont. The purpose of the Vermont study was: (1) to determine the long-range impact (planned as well as unforeseen) of some 30 previously funded exemplary projects in Vocational Education; and (2) to develop a policy analysis of the findings to assist those at the decision-making levels to determine those factors which seem to enhance impact of funded projects. The main question asked by the study was "what environmental, fiscal, operational, or management factors seemed to be related to project impact and how could policies be changed to favor these 'factors' of influence?" (p. 6). The paper provides a good literature review regarding impact evaluation of vocational education R and D and demonstration projects at the state and national level.

The methodology used in evaluating the 29 projects involved the Case Study Approach by the collection of on-site interview data. A special interview instrument was designed which would enable the research team to describe the projects' current status, and more importantly, to assess their impact in relationship to six impact criteria listed in the 1968 Vocational Education legislation (P.L. 90-576). These criteria are listed below:

1. Exemplary program efforts become part of the regular vocational program.

2. Dissemination of efforts and results to other schools or programs.

3. Implementation of the program by other schools.

4. Involvement of more local teachers and staff than were in the original program.

5. Demonstrated student growth on assessment measures.

6. Cooperative efforts between education-manpower-industry and the community.

During the Spring of 1977, on-site visits were made to each of the project sites. During that time, administrators, teachers, and students (where appropriate) who were affiliated with the vocational education projects were interviewed. State-level supervisors, where appropriate, were also interviewed. Project files were studied to provide additional program and fiscal information.

Using a scale of one to four, each project was classified according to the level of internal (i.e., within the host site) and level of external (i.e., degree of dissemination/adoption outside the host site) impact. The scale used is reproduced below. Data were analyzed using percentages and proportions.

SCALE TO MEASURE IMPACT

INTERNAL IMPACT	EXTERNAL IMPACT
• Project was completed, but no evidence of continued use of process or products is available. The project impact was negligible.	• Project results and materials were not made available to other school districts. There was no systematic dissemination.
• Project was completed and the process and materials developed are being used by those who were involved in their development.	• Dissemination of the project results and materials to other school districts was completed. In some cases this involved inservice workshops and other awareness activities.

Scale to Measure Impact (Cont.)

INTERNAL IMPACT	EXTERNAL IMPACT
• Project was completed and the process and materials have been strengthened, improved, and expanded by those who were involved in their development. • Project was completed and the process and materials are being used by those directly involved and other teachers within the system. There has been sustained involvement and impact on those individuals and programs not originally involved in the project.	• Another school(s) has utilized and implemented some of the processes and projects developed by the originally-funded exemplary program. • Another school(s) had adopted the exemplary program substantially as it was developed and implemented by the grantee.

Analysis of the data and conclusions/recommendations are described below.

Continuation

1. In 15 of the 29 (52%) projects, elements of the program continued once federal funding had terminated. Seven of those continuing projects had continued project effects which were random and ill-defined activities due to staff inclinations. These may have occurred because administrators see grants as "add on," extra money. Furthermore, plans for the adoption of successful elements were often non-existent or tied to the retention of a key staff person. With a more formalized effort to insure continuation of successful elements, a much greater impact could have occurred.

Dissemination

2. In 10 of the 29 (34%) projects, some dissemination efforts were identified. Dissemination strategies included conference presentations, mail-outs of newsletters or project materials and in one case, a much more sophisticated plan. The latter project's dissemination strategy had teacher training and televised information components. In general, dissemination efforts were random and involved distribution of information to within-state audiences and in no case was there a dissemination plan in the original proposals. It is recommended that the State Department of Education should develop a system for dissemination and diffusion which includes funding, and administrative/technical resources.

Implementation in Other Schools

3. Only five of the 29 programs (17%) had any impact on other schools. Four programs had elements of their methodologies adopted by one or more schools while one program (i.e., the Vocational Youth Group) expanded by including non-vocational groups in its on-going leadership training effort. Lack of major implementation by other schools of exemplary programs require the programs first be internally effective and secondly, be communicated to other audiences. These two characteristics were seldom in evidence.

Teacher and Staff Involvement

4. Ten, or 34%, of the programs had some impact on other teachers/administrators in their school or district. On the other hand, the evaluators found it difficult to assess the extent of impact since the definitions and proposed project treatments were vague. Six of the ten programs which seemed to result in more teacher involvement were career education projects. It was concluded that some impact occurred regarding teacher involvement but that it was only a fraction of what was originally described in project proposals.

Student Growth on Assessment Measures

5. Only two projects (7%) utilized student growth as a measure and it was shown to be statistically significant; while four other projects (14%) used student placement or anecdotal evidence to indicate student objectives had been attained. The remaining 23 programs did not address student outcomes but measured success in terms of activities completed. Furthermore, student population were frequently not well-defined.

Cooperation Between Education-Manpower-Industry and the Community

6. Thirteen (45%) of the projects indicated that they had a community involvement program component (e.g., field trips, classroom speakers, advisory committees, work experience for students in the community) although these efforts had been sporadic and generally not of a sufficient quality. Business representatives felt that communication problems and a lack of direction by educators was the reason for little success in this area of school-community cooperation.

Other factors affecting the programs' success were level of funding, project staffing characteristics, number of students served, management personnel characteristics, and project duration. Review of these and previously-mentioned impact criteria led the researchers to suggest policy-level recommendations which could be used to review future proposals.

1. Each project should have a plan for adoption within and outside of the host school(s).

2. Each program should have a well-defined dissemination program for at least its final year. Furthermore, the State Department of Education should design a system for disseminating successful programs beyond the point of the projects' original funding. This might be done by the state's funding of a separate project to the original grantee for dissemination/diffusion plus an offer to fund adopters' efforts.

3. Involvement of more local teachers necessitates construction of a defininte plan for internal diffusion of the procedures or techniques of the project.

4. Educators must make efforts to include manpower, industry, and the community in the planning and development of educational programs in order to achieve school-community cooperation.

5. Size of project funding requests or funded project's number of staff persons should not be used as factors in selection and funding of proposals.

6. The number and identification of students to be served by this project should be included as a proposal-review criteria. Where numbers exceed 100, the project may result in a less-organized and focused effort.

7. If student outcomes are to be a measure of project impact, student populations must be identified, growth dimensions expressed in measurable terms and appropriate assessment instruments selected and administered at certain intervals.

8. Qualification of key personnel and the degree that they are a part of or are supported by the administration are definite factors in program impact. Qualifications of key personnel, the relationship between initiators and implementors and their place in the hierarchy should all be reviewed when considering a proposal for funding. Turnover of key personnel at any point in the funding cycle should be considered by the state department as detrimental regarding continuation of funding or re-funding.

9. The proposed time length of a project should not be considered a factor in selection and funding of a proposal.

Stanford Research Institute Evaluation of the National Diffusion Network (NDN), volume 1: findings and recommendations (SRI Project No. 4385). Menio Park, California: Stanford Research Institute, May 1977.

To promote the identification of successful educational practices and encourage the spread of these practices to schools across the nation, the U.S. Office of Education (OE) established the National Diffusion Network (NDN). Created in 1974 under Title III, Section 306 of the Elementary and Secondary Education Act (as amended), the NDN is designed to bring together representatives of federal, state, and local agencies in order to promote the transfer of successful educational appraoches to new school sites both within and across state lines. Through the NDN, projects that have been identified as successful and validated by the OE/NIE Joint Dissemination Review Panel (JDRP) are made available to school districts interested in implementing these projects in their schools.

The NDN differs in several ways from other approaches to educational dissemination and change. First, the goal of the NDN is to effect the widespread adoption and implementation of innovations validated by the JDRP, as opposed to simply disseminating descriptive information regarding projects and practices. Second, the NDN uses two types of change agents in accomplishing this goal. The first type -- the developer -- is a change agent who operates a JDRP-approved project as a demonstration and who provides materials, training, and assistance to school districts interested in adopting that project. A developer may be a single individual or a staff of several persons. The facilitator, in contrast, is the change agent who works within a specific region, usually an entire state. Facilitators provide a link between developers and local schools. They identify potential adopters, establish communication between developers and potential adopters, and assist in the adoption process. There is an emphasis on interpersonal tactics to effect change as well as practitioner orientation to innovation-providers.

In order to assess the effectiveness of this 3-stage approach to dissemination of exemplary educational practices, OE contracted in June 1975 with Stanford Research Institute to conduct a national evaluation of the NDN organization, processes, and adoption characteristics. The evaluation focused on several major issues, including the structure and effectiveness of the NDN as a "national system", and the characteristics of the diffusion and adoption processes (i.e., summative and formative evaluation).

This first volume presents findings and recommendations while Volume 2 describes the technical details of the evaluation methodology/analysis procedures and statistical data from the evaluation surveys of NDN participants.

Study Methodology

Based on an input-process-outcomes evaluation model, four goals and associated procedures for the evaluation included:

1. to provide a comprehensive description of the evaluation, organization, objectives, and operating procedures of NDN (review of files and literature, participant interviews, and observation/documentation of network activities);

2. to describe the NDN processes and provide insight into how these influence adoptions (baseline data gathered during 1974-1975 survey of NDN participants via a questionnaire survey; comprehensive survey administered to new and continuing participants during Spring of 1976, multistage sample of continuing participants -- 16 developers, 16 facilitators, and 34 adopters -- identified, involved in site visit interviews, observations, file reviews, and extensive LEA staff survey);

3. to evaluate the organizational effectiveness of the NDN and supporting components (site visit observations, interviews, and file reviews, and documentation of NDN activities occurring during the course of the evaluation) -- its strengths and weaknesses as viewed from all levels of participant involvement; and

4. to conduct policy analysis on evaluation findings, and advance specific recommendations (reconsideration of findings in terms of the overall federal mission of encouraging the spread of new and successful educational practices).

Key evaluation variables were developed to examine the relationships of diffusion process, innovation, and LEA adopter characteristics in relationship with goal 2. These included: Inputs (characteristics of the innovation, the change agent, the adopting LEA's); Processes (initial stage -- of initial awareness, secondary awareness, and pre-implementation training; implementation stage, NDN organization); and Outcomes (primary impacts and process impacts). These are described in more detail in Table 2 of the report which is reproduced below.

Table 3 of the report summarizes the evaluation methods in terms of the primary evaluation goals addressed. It is also reproduced here.

In answering evaluation objective number 1, the study identified eight attributes of the NDN strategy. These are described below: (1) the source of the innovations is the LEA-based developer/demonstrator who invents and develops new ideas; (2) the NDN provides a pool of innovations that encompasses a broad range of content areas and includes mutliple programs within each

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Table 2

NDN EVALUATION VARIABLES

EVALUATION COMPONENT	CHARACTERISTICS	COMPONENT VARIABLES
	INPUTS	
Characteristics of Innovations	Curriculum	Educational content (basic skills, environmental education, etc.)
	Pedagogy	Programmed instruction to discovery
	Philosophy	Intact classroom to open education
	Implementation level	Number of classrooms, grade levels, schools at Developer site
	Materials	Types and quantity provided
	Cost	Adoption/implementation costs
Characteristics of Change Agents	Participant background and staffing	Project staff size and experience Staff differentiation Dissemination experience Base support Territory
Characteristics of Adopting LEAs	Size	District size (number of schools) District size (enrollment)
	Urbanism/ruralism	District ruralism
	Ethnic composition	Ethnic composition of district enrollment
	Centralization	Formality of rules and regulations Administration authority/leadership
	Educational climate	Staff/administration rapport Staff rapport Sense of participation (in decision processes) Sense of potency District or school needs assessment History of community problems
	Support for innovation	Attitude toward change (school/district innovativeness) Motivation toward change Local support for project Obstacles to change

Table 2 (continued)

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EVALUATION COMPONENT	CHARACTERISTICS	COMPONENT VARIABLES
	Primary contact involvement	Sense of participation (in project operations) Pre/post implementation involvement Current role in project
	Primary contact experience	Current assignment Years at school Years in district Years in profession
	Faculty/administrator involvement	How became involved in project Pre/post implementation involvement Current role in project Perceived familiarity with project
	Faculty/ administrator experience	Current assignment Years at school Years in district Years in profession Current degree Work toward advanced degree
	PROCESSES	
Initiation Stage		
• Initial Awareness	Outreach	Outreach (number of persons reached) Volume (number of schools and districts reached)
	Segmentation	Variation: content (stratification of materials)
	Redundancy	Variation: methods Outreach (types of persons and groups contacted)
• Secondary Awareness	Follow-up	Use of return postcards LEA awareness response
	Participant coordination	Networking (Developer/Facilitator interface)
	Conferencing	Conferencing (number and types sponsored or participated)
	Developer visits	LEA visits to DD site
	Adaptation	Variation: methods Variation: content

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Table 2 (continued)

EVALUATION COMPONENT	CHARACTERISTICS	COMPONENT VARIABLES
• Pre-implementation Training	Volume	Volume (number of LEAs and nonpublic schools involved)
	Targets	Targets (number and types of persons trained)
	Emphasis	Range of training content, methods, duration
	Formalization	Pre-training requirements Attendance requirements
	Adaptation	Variation in length, topics, methods
	Facilitator participation	Networking (Facilitator involvement)
	Turnkey	Turnkey (training of trainers)
	Adoption agreements	Number negotiated Contitions for agreements Who establishes
Implementation Stage	Number of adoptions	Number of adoptions (public and nonpublic)
	Scope and purpose of implementation assistance	Types of follow-up provided Post-implementation training (amount, targets)
	Frequency of assistance	Frequency of follow-up (by method) Percent of LEAs visited Interaction pattern
NDN Organization	Budget	Budget breakdown by stage DD/LEA financial assistance
	Participant interface	Materials to Facilitators Communications with Facilitators Communications with Developers Attitude toward counterpart role (Developer to Facilitator and vice versa)
	Perception of NDN	Attitude toward NDN Participation (in decision making)
	Technical assistance	Assistance from ED Assessment of ED Other sources of assistance

Table 2 (concluded)

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EVALUATION COMPONENT	CHARACTERISTICS	COMPONENT VARIABLES
	OUTCOMES	
Primary Impacts	Adoption scale	Adoption scope (number of components in use) Adoption level (number of classrooms, grades, schools)
	Fidelity	Adoption fidelity (replication vs. modification of methods and materials)
	Magnitude of change	Project innovativeness (newness of methods and subject matter)
	Perceived complexity	Implementation complexity (staff and resources involved, replacement vs. supplement) Implementation problems (number, nature, severity)
	Perceived success	Implementation success
	Valuation	Subjective evaluation of project
	Secondary diffusion	Secondary diffusion (others informed
Process Impacts	Training support	LEA evaluation of pre-start-up training LEA evaluation of post-implementation training
	Materials support	Project materials received (types) LEA evaluation of materials
	Developer support	LEA evaluation of demonstration site Assistance by Developer LEA evaluation of Developer
	Facilitator support	Assistance by Facilitator LEA evaluation of Facilitator Financial assistance from Facilitator
	External support	LEA evaluation of outside assistance received
	LEA evaluation	Formal impact evaluation (types, sources of assistance)
	Cost	Costs (incremental cost to LEA to date)

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Table 3

SUMMARY OF EVALUATION METHODS*

Methods	Description	Data Base	Primary Evaluation Goals Addressed
OE Program Review	File review of Developer and Facilitator grant applications, interim reports, NDN documents, JDRP; staff interviews	300 source documents 12 program officers	1,4
Status Survey I	Mail-out survey to Cohort I Developers, Facilitators, SEAs, and adopters	44 Developers (79% of 55)† 61 Facilitators (79% of 77) 906 LEAs (70% of 1,307)	2,3
Conference Observations	Observation/documentation of national and regional NDN conferences and of local project-specific events (awareness or training)	3 national conferences (100%) 5 regional conferences 12 local conferences	1,3,4
Site Visit Interviews	Interviews with administrators, teachers, pupils and staff at Facilitator, Developer, and adopter sites in the site visit sample	16 Facilitators 16 Developers and their demonstration sites 34 adopters	2,3
Site Visit Implementation/ Observations	Observation ratings and file review of demonstrations and adopter sites in visit sample	16 demonstration sites 34 adopter sites	
Technical Assistance Observation/ Interviews	Review and observation of technical assistance provided by technical assistance contractor (Far West Lab); field interviews of technical assistance (ED) staff	20 visits to ED 2 cluster meetings 6 staff interviews	1,3,4
Spring 1976 Survey NDN Evaluation Survey	Mail-out survey to all Cohort I and II Facilitators, Developers and sample of adopters.	NDN Evaluation Survey 64 Facilitators (83% of 77) 62 Developers (93% of 68) 1045 LEAs (72% of 1,460)	2,3
Site Visit Sub-Survey	In-depth survey of subsample of principals, teachers, and central administrators in interview sites	Site Visit Sub-Survey 149 teachers (64% of 234) 30 principals (77% of 39) 19 central administrators (73% of 26)	
General Literature Review	Review and synthesis of relevant literature in education innovation, dissemination, and change	300 references and documents	1,2,3

*Further described in Volume II.

†Numbers in parentheses indicate return rate and number surveyed. For example, 55 Status Survey I forms were sent to 55 Developers; the 44 Developer returns represent a 79% return rate.

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area; (3) the NDN is intended to promote large-scale awareness of its innovations and actual use of the programs in public and private school systems; (4) the NDN approach to diffusion makes use of both written material and personal contact; (5) the NDN provides for direct personal contact between the sources of the innovations and the adopters; (6) the NDN includes the new role of facilitator; (7) facilitator funds may be used to subsidize some adopter expenses incurred in the adoption process; (8) centralized technical assistance and supportive services in the form of an NDN exchange are provided to the funded change agent.

Description and evaluation of diffusion processes and outcomes were based on evidence obtained through the Spring 1976 survey (NDN developers, facilitators, and adoption staff), the interview/observation site visits, program review activities, and workshops/conference documentation. Evidence from these sources was used to characterize the salient and distinctive features of NDN diffusion/adoption processes within the initiation and implementation stages and to describe the organization that emerged during the NDN's first two years of operation. Throughout the presentation and discussion of findings, the researchers attempted to differentiate the sources of evidence as well as to evaluate the findings in terms of the overall goals of the NDN. Finally, survey data were evaluated against adoption outcome criterion; that is, multiple regression techniques were used to identify statistically significant relationships between the adoption outcomes and participant characteristics, activities, and processes.

Study Findings

Initial awareness activities consisted of large-scale outreach campaigns conducted by facilitators and targeted to virtually all education agencies in the service regions. Outreach campaign tactics included single or multiple mailings of brochures, NDN project catalogs, selected sample projects from the NDN catalog, letters or newsletters. The following describe the nature of the NDN initial awareness activities: (1) the initial awareness message tended to be concise and attractive; (2) redundant (multiple mailings) tactics were used to increase the awareness outreach; (3) outreach tactics were often segmented, reflecting the organizational structure of the schools; (4) initial outreach tended to be high-volume but specialized; (5) a multiple regression analysis relating outreach tactics (volume, segmentation, method variation, and redundancy) to adoption consequences (scale, fidelity, magnitude of change, perceived implementation complexity, perceived success, valuation and secondary diffusion) and process outcomes (LEA evaluation of NDN training, assistance, etc.) suggested that sheer volume of the initial outreach effort may not always be beneficial and may occasionally be detrimental to adoption,

particularly if outreach isn't successfully coordinated with follow-up assistance. There is an argument made for regionalization of initial awareness activities. The researchers suggest that more might be gained by concentrating these initial awareness activities on selected candidate LEA's.

The secondary awareness component represents the first critical period in the adoption process as viewed by the researcher. Particularly important are the facilitators reported requests for additional information. The 75 percent response rate of public vs 22 percent response rate of private schools was perhaps partly due to the use of in-person followup tactics conducted at public schools and also partly due to use of convenient reply materials. General elements of the secondary awareness component included: (1) strong emphases on conferencing as an effective secondary awareness tactic; (2) conferencing became more specialized each time; (3) interpersonal dynamics dominated secondary awareness proceedings; (4) secondary awareness materials provided in the NDN varied widely in depth, detail, and sophistication; (5) network participants (facilitators and developers) tended to differentiate both content and methods of their awareness programs; (6) a large percentage of secondary awareness activities were arranged and conducted by developers. A frequent approach involved visits to local schools by developer staff; (7) NDN supported the visits by potentia adopters to developer sites; (8) besides coordinating awareness, facilitators served screening and gatekeeping functions (individualized styles of facilitators to connect interested LEA's with the right NDN projects); (9) facilitators served as catalysts by providing financial assistance for LEA/developer contacts; (10) secondary awareness, although more focused than initial awareness, still tended to be high volume; and (11) an in-person component at the awareness stage appeared crucial. Based on a multiple regression analysis, these secondary awareness components significantly influenced adoption outcome indicators. The potency of in-person tactics become evident in the strong sense of enthusiasm at the conferences and demonstration and this enthusiasm helps affect adoption.

Training was the third category of activities in the initiation stage and involves pre-startup and implementation assistance. Training activities were generally coordinated by facilitators but conducted by developer staff. Some training was generally needed although developers differed in their opinions as to how and where it should be provided. Furthermore, NDN training activities tended to become relatively standard in method and content emphasis. All developers and facilitators agreed that potential LEA adopters should at least accept the philosophy of the innovation prior to attending conferences. Multiple regression analysis suggest that as training becomes more

mechanical or technology-oriented, the quality and viability of subsequent adoptions diminishes. More specifically, focused person-intensive training coordinated by facilitator projects but administered by developer staff produces more complete and successful adoptions of relatively complex innovations whereas mechanical or formal training approaches seem less successful even for relatively noncomplex innovations (where complexity is defined in terms of the needed number of staff and resources). Even regarding adoption agreements, if the approach is overly rigorous and does not appear personalized, it is less successfully adopted or continued. High volume training is less effective with complex innovations involving large amounts of change and considerable time and effort for implementation. Favorable results in training are indicated if the training focuses on creating enthusiasm, knowledge of the innovation, and an emphasis on quality in the innovation.

The second major stage in the NDN diffusion process begins when local adopters actually commence to implement their adopted innovation. This general stage is characterized by two categories of adopter assistance activities -- implementation assistance and followup assistance. Characteristics of the implementation stage included the following: (1) NDN adopters were rural or suburban rather than urban (a typical adopter district had an enrollment of 11,000 pupils, 12 elementary or feeder schools, 4 intermediate or junior high schools, and 2 senior high schools); (2) adoptions tend to involve implementation of low to moderate organizational impact (most involve multi-class or multi-school not district-wide adoption) so as not to disrupt the bureaucracy of the educational system; (3) implementations were concentrated at the preschool and elementary grade levels where bureaucratic structures and organizations are simplest.

Successful implementation of innovations was empirically associated with the following: strong leader (i.e., primary contact) and administrative concurrence, involvement by primary contacts in <u>more</u> than just administrative issues, but at least in that. The multiple regression analysis data suggest that as experience and level of involvement of the primary contact increases, nearly all adoption outcome indicators become more positive. In general, the most successful primary contacts are district-wide specialists, such as curriculum coordinators or other central staff. Principals and teachers are generally not good primary contacts.

Implementation generally involved at least some modification of methods and materials to adapt the innovation to local conditions. Regression analyses indicate the importance of LEA context features such as local support for the adoption, staff/administrative rapport and staff participation in the adoption

process (e.g., frequent adoption-related meetings, sense of participation, motivation towards change) over and above all other influences. Moreover, the magnitude and consistency of these context characteristics in influencing nearly all outcome measures suggests they are easily as important as any other class of variables in determining adoption events. These context variables in part predispose adoption success and are in part affected by the adoption process. The implementation process was gradual, cumulative, and appeared to involve some degree of reinvention. Implementation usually occurred during year 2 of the adoption period. The gradual and cumulative nature of implementation of moderately complex, substantial change indicated that several years are needed for complete adoption (i.e., allow two or more years for adoption).

NDN influences on the adoption process included the following: (1) materials played a crucial role in the implementation process; (2) followup visits represented a distinctive feature of the NDN strategy; (3) NDN implementation assistance was positively regarded and evaluated by adopters; (4) NDN adoptions tended to involve reasonably substantial change at relatively low perceived local cost and were highly regarded by adopters ($\bar{m}$e cost per adopter was $600); (5) one key to the success of the NDN adoptions appeared to be the practitioner focus of JDRP-approved innovations; (6) secondary diffusion appeared to be substantial ("ripple effect").

Statistically derived staffing and organizational characteristics of the 64 facilitator and 62 developer projects suggest that the average developer staff is larger and more specialized toward instructional issues than is the average facilitator staff. For example, developers tend to have research or college-level teaching experience while facilitators were experienced as teachers or administrators in LEA settings. Most facilitator projects were newly formed organizations while developer functions were carried out by organizations already operating prior to NDN. Regression analyses suggest developer staff and organizational characteristics are relevant to adoption processes (adequacy of training fidelity, implementation, complexity, perceived success, LEA valuation) while facilitator characteristics relate to adoption consequences (adoption status, secondary adoption). Staff organization of both types was empirically related to qualitative aspects of adoption processes and outcomes. Larger and more experienced developer projects seem to provide more and better materials to the adopter and tend to effect encouragement of selective adaptations and phase-in (starting small) implementation than do smaller and less experienced developer projects. These developers are more successful in obtaining financial assistance from facilitators, in reducing cost to the adopter and in meeting adopter needs and interests (i.e., they receive more positive adopter evaluations).

Coordination, or networking, among developers and facilitators is far from complete since there is a greater tendency for linkages to occur with more experienced (cohort I) facilitators, regardless of developer experience (cohort I, II, and III). By virtue of facilitator project staffing, they exhibited a practitioner orientation, yet organizationally, they functioned as advocates and dissemination agents for their respective states.

Most NDN adoptions represented changes in practitioner behavior so the effects on pupil levels may require two or more years to manifest. OE's well-intended attempt to improve communication (both internal and external) by establishing a participant advisory group (steering committee) was only partly successful, as its origins were unclear to most NDN participants, and its purpose and functions were misinterpreted by group members. What most seemed to consolidate participants was the development and specification of goals, objectives, and effectiveness criteria. Management and leadership of NDN was characterized as low profile. Although OE's low profile management style was well suited to the emergence and formation of the NDN approach, a more visible and centralized style seems needed for the future.

The ED (Education Diffusion) component of the organization provided centralized technical and supportive services to OE and the NDN and also provided catalogs of developer and facilitator projects and monthly newsletters, filmstrips, and publicity. It was regarded well overall, but did not always meet participant expectations, partly due to factors beyond their control. Some form of continued centralized technical assistance to the NDN is called for, particularly in the areas of information exchange and materials refinement.

Key policy issues and recommendations for NDN continuation were given. These are listed below.

1. Continue federal support of NDN in order for it to survive and in order for the JDRP as a quality control mechanism to continue within NDN. Without the JDRP, NDN would not have fared well. State involvement and support of JDRP is also needed (e.g., SEA-level input into JDRP review process).

2. State participation and support should be maintained and increased. The creation of state facilitator as change agents provided a kernel of state participation in the NDN, although state facilitators were restricted by Title III (306) funding regulations. Due to the federal regulations, state facilitators were required to administer operations through local or intermediate educational agencies. The latter perceived NDN state facilitators as setting up rival systems. States could be expected to do intra-state (not interstate) diffusion with national aid since they tend to prefer within-state over out-of-state alternatives.

3. It is recommended that state support of NDN be encouraged and that the NDN be considered as a cooperative venture between the federal and state government.

4. As incentives for increased state participation, it is recommended that for future funding cycles, continued preference be given to facilitator projects which are clearly coordinated with the dissemination agencies and express the interests of their respective state departments of education.

   - allow states involvement and responsibility for establishing state facilitator agents;

   - allow states involvement in the JDRP; and

   - allow non-Title III projects to be reviewed before JDRP (the JDRP has been associated with Title III).

5. Recommend that provision be made for state (or representative) input in setting priorities for types (i.e., early education, basic skills, etc.) of JDRP-approved innovations or exemplary projects to be funded for diffusion in the NDN.

6. Recommend continuation of OE's effort to ensure that the selection of JDRP-approved projects funded for future diffusion through the NDN represent the range of approved projects (i.e., be maximally relevant for national diffusion).

7. Recommend federal funding for NDN developers/demonstrators projects be provided for at least three consecutive years, annually renewable, based on performance considerations, and the availability of funds and at the current level of funding. A fairly constant level of support should be provided to funded projects during the first two years, but reduced by one-half or two-thirds the level of year 1.

8. Recommend facilitator projects receive SEA concurrence and be given funding preference over non-SEA endorsed. Preference should also be given to facilitator operations that are coordinated across operating programs in SEA's. SEA's should also be encouraged to match federal support of facilitator projects near the end and eventually assume total support.

9. Recommend that OE seek to establish incentives and sanctions which will serve to coordinate parallel dissemination activities within a single diffusion system for all exemplary elementary and secondary innovations.

10. Recommend that NDN program officers coordinate with the NIE Capacity Building Program and explore the potential for encouraging cooperative planning between the two efforts at the state level to avoid duplicating effort and creating rival systems.

11. The NDN should be funded and administered as high within the federal education division as is practical. (i.e., from the Commissioner's Office).

12. A suggested improvement could be made in the internal organization's governing structure of the NDN (leadership, two-way flow of information and inclusion of a representative policy board).

13. Recommend that specialized technical assistance contracts be let for operating NDN. Special areas of needed technical assistance were mentioned.

14. Recommend that criteria for assessing, documenting, and reporting the status and quality of adoptions should be developed and supplied to all NDN participants to be used in reporting on their activities and outcomes.

15. Recommend that studies be undertaken to better understand and evaluate these classes of variables as they exist in current diffusion and dissemination programs, particularly study secondary diffusion, educational consequences of NDN adoptions, commissioned by OE.

16. Recommend OE take immediate steps to develop relevant information on SEA infrastructure, norms, and sentiments related to dissemination activities.

17. Recommend that the government undertake in-depth studies of a representative sample of urban school systems to determine the nature, severity, and means of overcoming the factors limiting the spread of innovation to them.